ELECTRICAL WEST

McGRAW HILL CO. OF CALIF.

•

PRICE 25c PER COPY

Second Annual

APPLIANCE SALES GUIDE

in this issue

TEMBER
1936

TIMED EFFORT

Wins!

The amazing feat of George Varoff in vaulting 14 feet, 6½ inches to a new world's record is due to just one thing —timed effort. No bigger, no stronger than previous champions, he has captured the secret of timing muscular exertion to carry him higher than any human being has ever vaulted before.

In electrical merchandising, too, timed effort wins . . . coordination between appliance advertising and the dealer's selling program . . . recognizing the trend of the times and taking advantage of it . . . refusing to accept past sales records as a limit to possible accomplishment.

The future of the electrical industry is bright indeed. This Fall will see an ever-increasing number of homes equipped with All-Electric Kitchens and a host of small appliances. Great profits are in store for dealers who apply the principles of timed effort. It's the way champions are made.

SOUTHERN CALIFORNIA EDISON COMPANY LTD.

9-36

SOUTHERN CALIFORNIA Edison

CALIFORNIA'S *Electrical Age* HAS JUST BEGUN!

ELECTRICAL WEST (with which is consolidated The Journal of Electricity), September, 1936, Vol. 77, No. 3. Published monthly by the McGraw-Hill Company of California, 883 Mission St., San Francisco, Calif. Entered as second class matter at the post office at San Francisco under the Act of March 3, 1879. Additional entry as second class matter at the post office at Los Angeles. Printed in U. S. A. Subscription rate in U. S. and U. S. possessions, and Canada, $2 per year; all other countries $3 gold (thirteen shilling). Single copy, 25c.
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ELECTRICAL WEST

With which are consolidated the "Electrical Journal," the "Journal of Electricity, Power and Gas," and the "Journal of Electricity."

ESTABLISHED 1887

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▼

• THE piece de resistance of this issue is the Second Annual APPLIANCE SALES GUIDE—designed to help the industry, particularly the dealer, sell more electrical appliances. It is chock full of business-getting ideas, crammed with tested selling material and profit-making suggestions. It is a feature that every man and woman in the industry can study to good advantage.

●

• WHOLESALE ELECTROCUTIONS are not confined to Russia since the California Committee on the Relation of Electricity to Agriculture has been investigating insect control via the electrical route. Electrified traps using various monocromatic colors as bait are developing widespread application as the article in Rural Load Building (page 22) describes.

●

• ENGINEERS WILL value the articles on the application of the automatic oscillograph to record data on system disturbances and on the application of a new type of rod gap for system protection against extreme lightning surges both of which are included in the Engineering Symposium (page 16).

Speaking of leadership, and on the subject of leadership, F. B. Lewis, the new president of P.C.E.A., has a message that everyone in the industry will find inspiring. Read it and be reassured of our industry's future.

●

NEXT MONTH

• TIMED TO coincide with the advent of Boulder Dam power in Los Angeles, ELECTRICAL WEST will present in the October issue a special 32-page pictorial history of the Boulder Canyon Power Project from its inception to its completion. Over 200 of the best views of pertinent details of construction, apparatus and equipment of the dam, power house and transmission line will be reproduced with captions explaining engineering details of the design. This complete, accurate, and interesting coverage of the world's largest and best known power project will be a feature that you will want to keep in your library.

3 NEW PRODUCTS
Which Give Further Evidence of BENJAMIN Leadership

Skylight

A unit especially adapted for illuminating the composing and makeup operations in newspapers and printing shops. Controls and minimizes the intensity of specular reflection from shiny surfaces such as type. The 36″ x 28″ units may be coupled together in multiples along any or all four edges. Lamps, 15 to 200 watt, are inserted in twin socket, through hand holes.

250 Watt Combination Mercury and Incandescent Lamp Diffuser

Provides a new degree of eye comfort and reduces the fatigue factor in installations requiring high lighting intensities, by the scientific blending of mercury and incandescent light. Produces a softer, more pleasing light which has a satisfactory degree of color discrimination for general lighting requirements.

Long Range Floodlight

Delivers an extremely concentrated beam for reaching areas up to 275 feet from light source. In football field lighting, it is recommended where requirements make it necessary to mount units behind the grandstand or at a distance of 60 to 110 feet back from the sidelines.

☐ Send CATALOG SHEETS today with complete details.

Firm Name.....

Name.....

Address.....

City.....State.....

To Benjamin Electric Mfg. Co., Dept. EW, Des Plaines, Ill.

BENJAMIN TRADE MARK

LIGHTING EQUIPMENT

Presenting—

THE FULL LINE OF
G-E RANGE RECEPTACLES
AND CORD SETS

Surface Range Outlet
Cat. No. GE3000

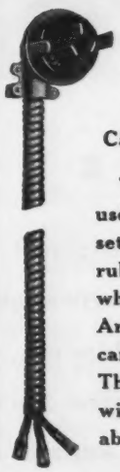
All-rubber Range Unicord
Cat. No. GE3002

Flush Range Outlet
Cat. No. GE3036
with Plate GE3037

GENERAL ELECTRIC WAS THE FIRST TO INTRODUCE CONVENIENT RANGE INSTALLATION DEVICES

These G-E Surface and Flush Range Receptacles with their All-rubber Cord Sets provide modern range installations. They are of attractive and compact design. Every feature of their construction makes for quick, easy, and economical installation. The G-E Range Unicords have an unbreakable all-rubber cap molded directly to the cord.

Send for complete information at once. Write Section CD-679, Appliance and Merchandise Department, General Electric Company, Bridgeport, Conn.



BX ARMORED CABLE SET
Cat. No. GE37X76

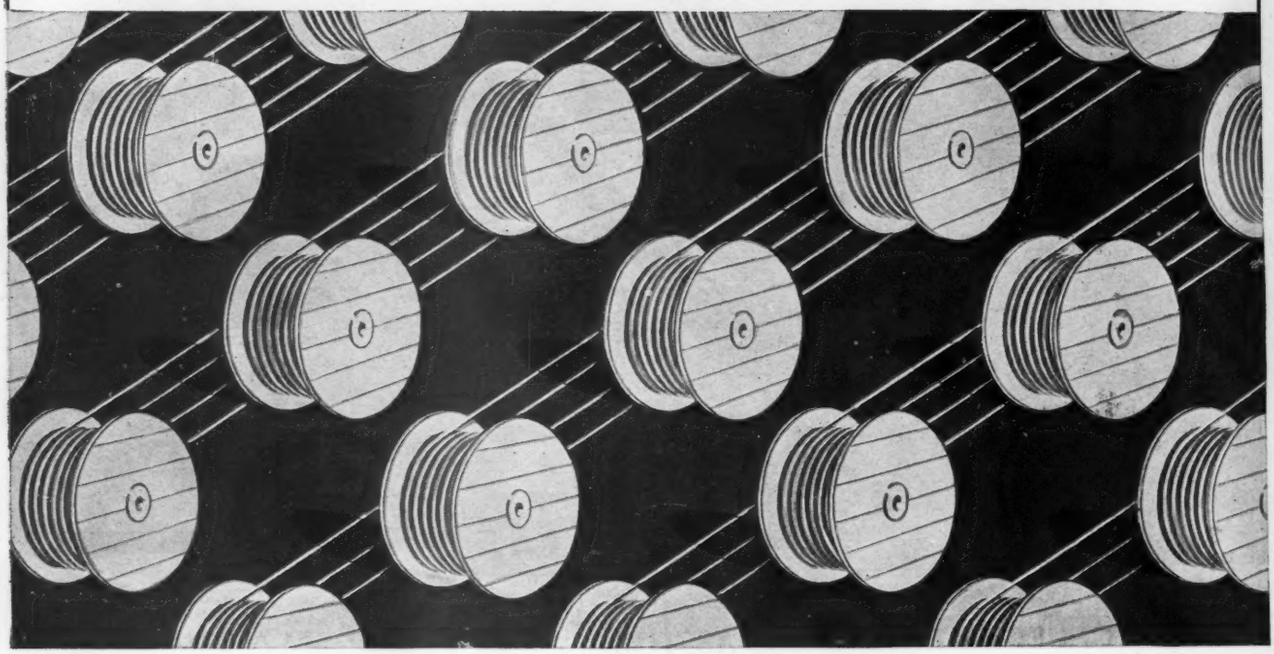
The most widely used of range cord sets is the G-E All-rubber Unicord. But where required, BX Armored Cable Sets can be furnished. They may be used with either of the above receptacles.

GENERAL ELECTRIC

WIRING DEVICES

APPLIANCE AND MERCHANDISE DEPT., GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONNECTICUT

ACSR



FOUR LETTERS FOR SAVINGS

Aluminum Cable Steel Reinforced is more economical because higher strength-weight ratios permit longer spans and easier handling; again, because corona loss is lower; yet again, because flashovers are less serious. Arcs are unstable on Aluminum, and are unlikely to cause deep burns on the strands which completely sheath the stressed steel core.

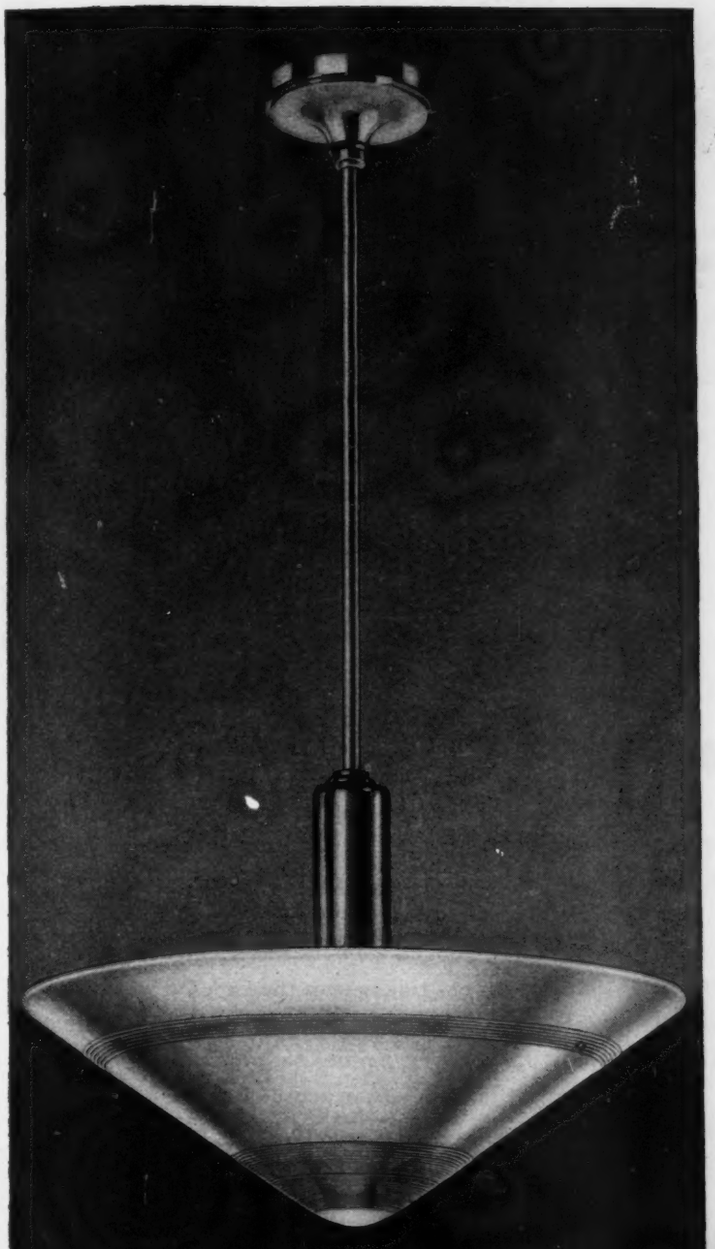
But most important to savings is the service which A. C. S. R. represents. When you avail yourself of the co-operation offered by A. C. S. R. engineers, in making plans and solving transmission problems, you make use of the latest, most up-to-date *know-how* provided by research and experience. For example, many companies are now profiting from the technique of vibration control with Armor Rods and the Stockbridge Damper.

Call our engineers in when you want this A. C. S. R. service. There is never any obligation. ALUMINUM COMPANY OF AMERICA, 2132 Gulf Building, Pittsburgh, Pennsylvania.

ALUMINUM COMPANY OF AMERICA

WHEN MODERNIZING LIGHTING . . . DO IT RIGHT WITH

MAGNALUX



New Features MAKE THIS FINEST LUMINAIRE EVEN FINER!

Recognized as the finest commercial luminaire on the market, MAGNALUX now boasts these new refinements . . .

New selective glass thickness . . . provides even richer color tone and lower, more uniform surface brightness.

New three-point rod suspension . . . simplifies installation, cleaning and assures uniform suspension.

New simplified socket . . . one-piece die casting permits shortening of unit to meet exacting specifications without marring the stem.

New swivel joint . . . provides semi-rigid suspension with a simplified, strong one-piece construction.

New husk design . . . provides even better light cut-off and appearance.

If you will get the complete facts about MAGNALUX . . . compare its appearance, its illumination, its construction with any other luminaire on the market . . . we feel sure that you too will agree that MAGNALUX excels. Ask your Westinghouse Distributor for a demonstration, or write us for full particulars. Westinghouse Electric & Mfg. Co., Lighting Division, Edgewater Park, Cleveland, Ohio.

WESTINGHOUSE 1886 W 1936 GOLDEN JUBILEE

WHEN YOU THINK OF *Lighting* THINK OF

Westinghouse

Quick Heating!

...that's what you get from ranges with closed heating elements sheathed in Inconel*

"Calrod" closed heating unit sheathed in Inconel.

General Electric "Imperial" range with two burner wing units, Monel Metal top, Inconel covering for its heating coils.

● It's quick action that counts with buyers today . . . even with buyers of ranges. Show your customers how fast range elements sheathed in Inconel heat up, and you make more sales.

Point out the simple fact that the heating element wire is entirely inclosed and protected with a metal covering of Inconel. Let the customers see for themselves how the closed elements leap into action.

It is surprising how often *showing* people means *selling* them. That's why Hotpoint and G. E. use Inconel-sheathed heating units in their ranges.

More and more range manufacturers are turning to closed heating units and adopting Inconel as the sheathing material. There must be other advantages besides quick heating. There are:

Inconel is a Nickel-Chromium alloy. Tough, strong, wear resistant and stubbornly resistant to oxidation from heat. The closed element sheathed in Inconel gives long dependable service. The heating wires are protected, so boil-overs do not cause element failures. The children cannot tinker with the exposed wires.

Heavy kettles cannot harm Inconel. Rust cannot affect it . . . not ever. So the user almost never knows the annoying lay-offs and expense of repairs.

You make more sales by offering ranges with closed units sheathed in Inconel and you're sure of more steady use and greater loads on the line after you sell them. Both ways you profit.

• • •

For full information and names of range manufacturers who offer closed units sheathed in this durable Nickel alloy, address:

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York, N. Y.

*Reg. U.S. Pat. Off.

INCONEL

FOR HIGHER SYSTEM STABILITY

Eliminate THIS TIME DELAY...

WITH HIGH-SPEED CARRIER RELAYING

Outstanding ADVANTAGES

Utilizes high-speed distance protection already installed.

Assures high-speed protection for ground faults as well as phase faults.

Service continuity is maintained by simultaneous tripping that permits quick reclosing.

Selectivity without time delay.

High-speed carrier relays, like Westinghouse distance relays, give protection independent of relays on other lines.

Uses standard relay elements.

With even the best high-speed relays, the end zones of each line section are not given the same high degree of protection as the center 80%. The time delay occurring in these zones may cause costly trouble.

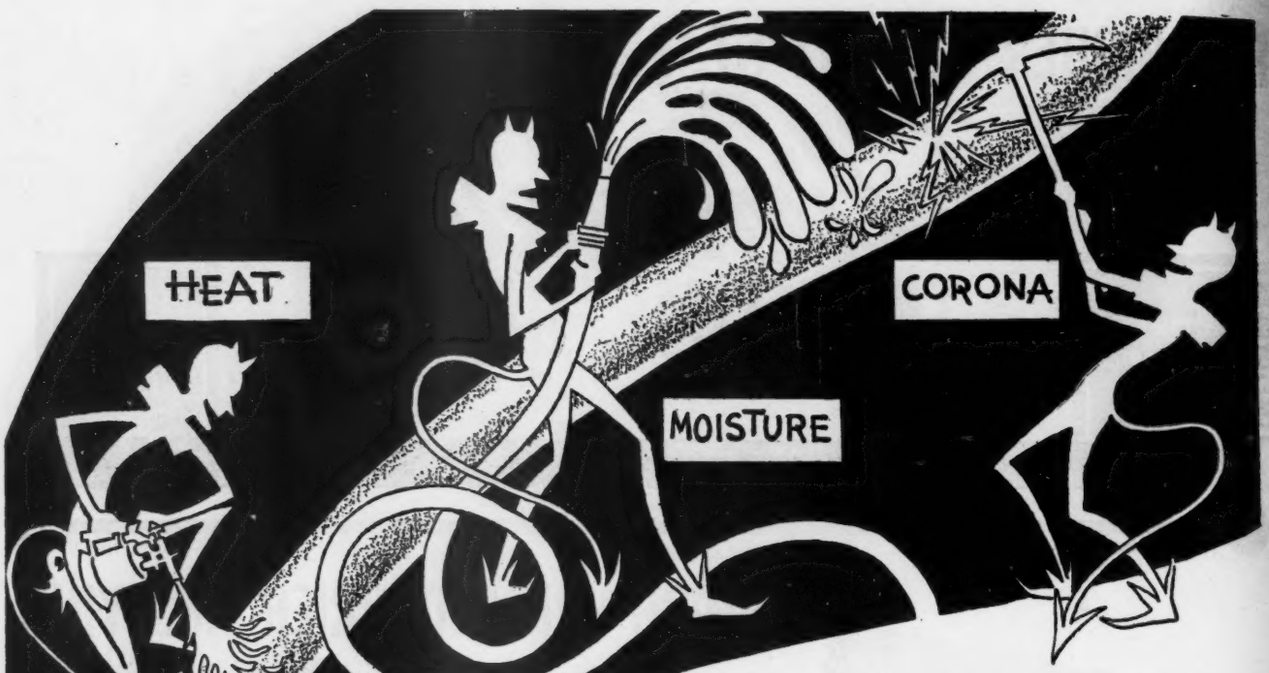
Westinghouse carrier relaying eliminates this by definitely assuring straight-line, high-speed protection throughout the whole section. This newest aid to system stability will help lines carry safely the unprecedented loads of to-day.

J40040

Essential Parts of Carrier Relaying

QUALITY 1886 W 1936 METERS INSTRUMENTS RELAYS

Westinghouse



Effectively Resistant to
HEAT, MOISTURE, CORONA

OKOLITE
INSULATION

OKOLITE insulation permits the use of higher voltages—higher loadings. Not requiring a lead sheath, it avoids the wiping of joints, the effects of electrolysis and corrosion, sheath losses, and other disadvantages of lead.

OKOLITE is a high-voltage cable insulation developed upon extensive research—and backed with an impressive performance record. It has the resiliency and other desirable mechanical characteristics of rubber insulation. It is particularly resistant to heat, moisture and corona.

OKOLITE insulation is suitable for many classes of power cable. Its scope runs from a small control wire to a heavy generator lead—or a submarine power cable.

OKOLITE insulation is particularly adaptable for braided cables in wet ducts—or where there are high temperatures.

THE OKONITE COMPANY

Founded 1878
and

HAZARD INSULATED WIRE WORKS DIVISION

THE OKONITE-CALLENDER CABLE COMPANY, INC.

EXECUTIVE OFFICE: PASSAIC, N. J.

New York
Philadelphia
Los Angeles

Boston
Pittsburgh
Seattle

Chicago
Washington
Dallas

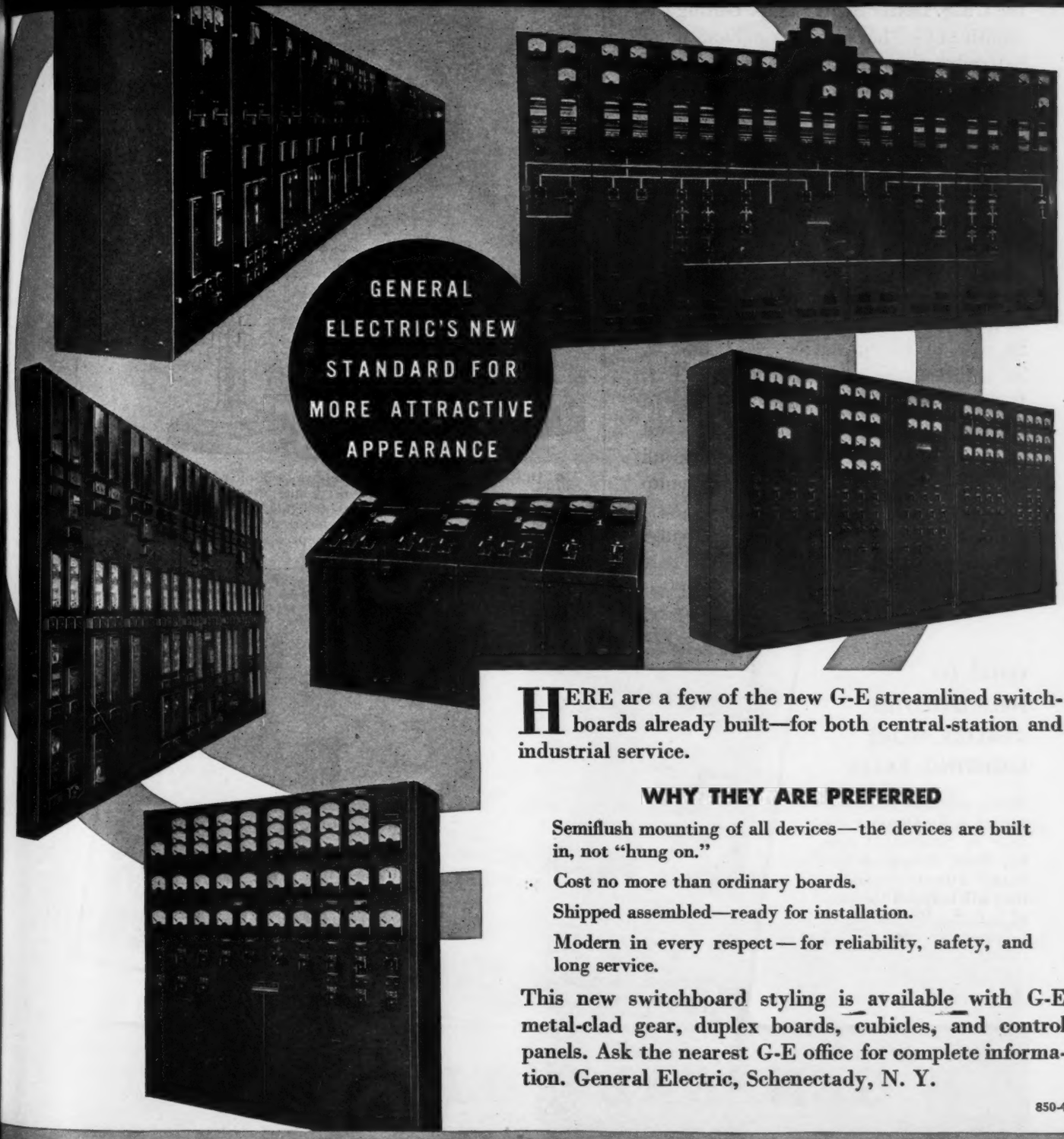
Detroit
San Francisco
Atlanta

Factories: Passaic, N. J. Wilkes-Barre, Pa. Paterson, N. J.

OKONITE QUALITY CANNOT BE WRITTEN INTO A SPECIFICATION

A HIT *from the Start!*

MODERN SWITCHBOARD STYLING



HERE are a few of the new G-E streamlined switchboards already built—for both central-station and industrial service.

WHY THEY ARE PREFERRED

Semiflush mounting of all devices—the devices are built in, not "hung on."

Cost no more than ordinary boards.

Shipped assembled—ready for installation.

Modern in every respect—for reliability, safety, and long service.

This new switchboard styling is available with G-E metal-clad gear, duplex boards, cubicles, and control panels. Ask the nearest G-E office for complete information. General Electric, Schenectady, N. Y.

850-4

GENERAL ELECTRIC

In October A SPECIAL DRIVE WILL BE LAUNCHED TO BRING BETTER LIGHT-BETTER SIGHT INTO EVERY HOME

AN important part of the whole Better Light-Better Sight program this fall is the special "Second Birthday" Celebration of the I.E.S. Better Sight Lamp. During the month of October almost a million and a half advertisements every day will feature I.E.S. Better Sight Lamps in an effort to reach a quotà of one million new lamps in one month's time.

This campaign begins when people are growing more conscious of their increasing need for light . . . as the days grow shorter. The entire lighting industry participates, uniting to promote the spread of the Better Light idea and to increase the use of I.E.S. Better Sight Lamps. To utilities, the sale of 1,000,000 I.E.S. Better Sight Lamps means the use of 1,000,000 100-watt (or larger) bulbs and 80,000,000 K W H of energy. For full details write the G-E Incandescent Lamp Division Office serving you, or Department 166, General Electric Company, Nela Park, Cleveland, Ohio.

● All I.E.S. Better Sight Lamp makers will offer "Second Birthday" Specials, representing the best values they can devise. These lamps will carry the special blue and gold I. E. S. Birthday Tag (shown above) and the public will be strongly urged to look for it in every store that sells portable lamps.

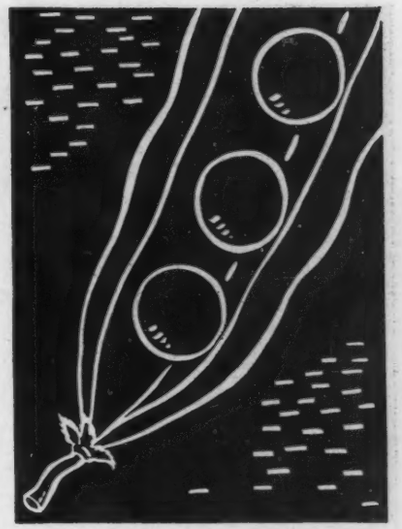
and to
HELP UTILITIES REALIZE MORE LIGHTING SALES

This powerful two-color spread in the October 3rd issue of Saturday Evening Post is one of the many advertisements that will help sell the idea of I. E. S. Better Sight Lamps throughout October.

GENERAL ELECTRIC

AS *Unlike*

AS PEAS IN A POD



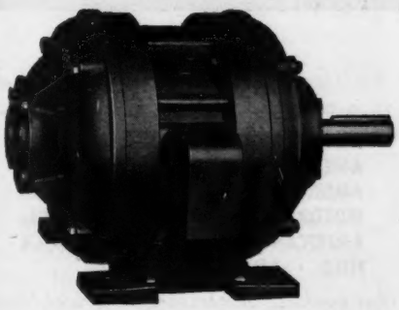
● Peas in a pod may look exactly alike . . . in color, in size, in shape . . . but naturalists know that these seemingly identical peas have huge inherent differences—one may engender a sturdy race, another a race of weaklings.

PEAS . . . and MOTORS! In both, the possibilities for inherent differences are great.

Motors can be built of light materials so that they will hold together and fulfill their electrical characteristics . . . but what about their mechanical durability?

Allis-Chalmers Motors excel because they were distinctly designed and developed for severe industrial duty. They were not developed through our electrical department alone, but through our electrical department working closely in conjunction with all the highly specialized knowledge and experience of all the various departments of the Allis-Chalmers Mfg. Co., builders of the most diversified line of machinery on the American continent.

The Allis-Chalmers Mfg. Co. builds standard motors of every type from 1 hp. up—also motors for special application



Allis-Chalmers Motors have been designed and built not only to deliver their electrical characteristics precisely, but to take a beating day after day and year after year and continue to deliver them faithfully. They are the sturdiest motors on the market—bar none.

Their great mechanical strength reduces maintenance costs to the minimum and extends their life beyond that of all less sturdily constructed motors, making them the most profitable motor buy on the market today.

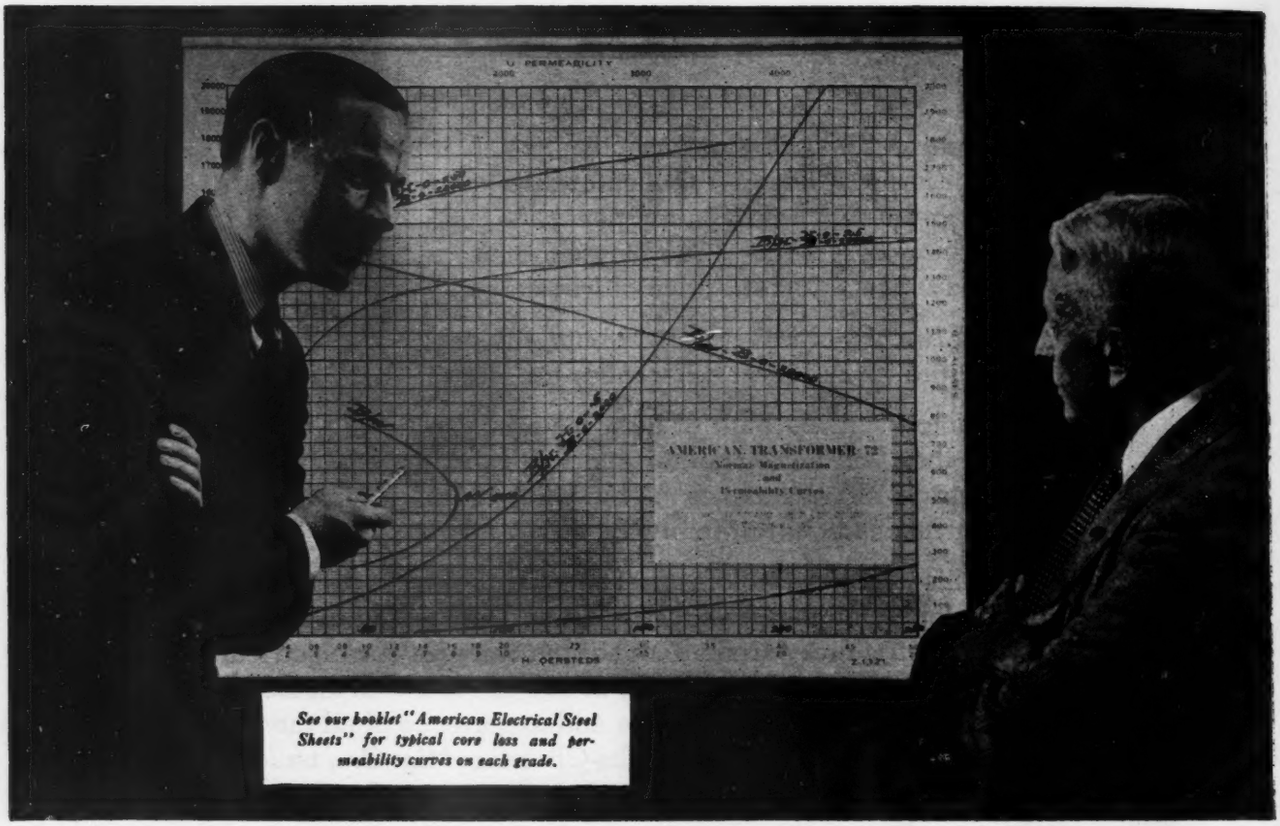
MOTOR DIVISION

ALLIS·CHALMERS

FOR EVERY PURPOSE

MILWAUKEE WISCONSIN

AMERICAN ELECTRICAL SHEETS
are specially designed for their particular jobs



See our booklet "American Electrical Steel Sheets" for typical core loss and permeability curves on each grade.

WITH manufacturing cost and electrical efficiency so directly affected by the proper choice of core material, your equipment is not as good as it might be unless you are using electrical sheets specially designed for each specific use.

Since the optimum combination of properties (flatness, ease of punching, permeability, core loss, aging, and cost) varies for different equipment, we offer you American Electrical Sheets in a variety of grades and types—each specifically designed to make a better core at minimum cost in its recommended application.

Don't overlook this opportunity to reduce manufacturing costs, and to improve electrical characteristics. Use American Electrical Sheets which are flatter, more uniform, easier to punch . . . which have higher permeability, uniformly low core losses.

American Electrical Sheets are made in a variety of grades in these types:

AMERICAN TRANSFORMER 60-66-72
AMERICAN RADIO TRANSFORMER 72
AMERICAN DYNAMO · AMERICAN MOTOR · AMERICAN U. S. ELECTRICAL
AMERICAN ARMATURE · AMERICAN FIELD · AMERICAN POLE

Our booklet "American Electrical Steel Sheets" contains magnetization, permeability, and core loss curves. Write today for your copy.

AMERICAN ELECTRICAL SHEETS

COLUMBIA STEEL COMPANY · *San Francisco*

Pacific Coast Distributors of American Electrical Sheets for Carnegie-Illinois Steel Corporation

United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

ELECTRICAL WEST

[*Devoted to the economic production, transmission and distribution of electric power and its application to industry, commerce and the home in the Pacific Empire, and to the sale and distribution of electrical utilization devices, equipment and appliances in that area*]

SEPTEMBER, 1936

Blazing New Trails

By FRED B. LEWIS

President Pacific Coast Electrical Association

A RECENT sales letter issued by a southern California publisher quotes a motto which Frank Munsey had on the wall of his office: "Conservatism has its place, but it doesn't blaze trails or win battles. Better the mistakes of progress than the inertia of a sure thing."

The letter goes on to comment, "you may not have admired Munsey, but the mergerer from Maine ran a shoestring up to forty millions; which is a fair country performance in anybody's league."

I am among those who were not deeply moved by Frank Munsey, and yet I agree with the writer of this letter that Mr. Munsey must have had something on the ball. Certainly no business, including our own, can succeed in a large way without a willingness to undertake something new—whether this be the introduction of a new mechanical device or the application of some new policy of management.

It is my desire during this year when I am serving as president of the association that we may explore some new paths and do some original thinking with the hope of opening up new fields of activity which will be beneficial alike to the members of the industry and the millions of customers who use our products.

To this end we are emphasizing the point that this association truly represents all branches of the business. Tradition has left the impression that ours is an organization devoted mainly to the interests of public utilities—with manufacturers, wholesalers, contractors and independent engineers playing a minor part. I wish this impression might be dispelled. An examination of the names on our directorate will show how well we are distributed among the various branches of the industry. Likewise, our programs at conclaves and conventions are designed to bring out the problems, suggestions and opinions of our entire membership.

The theme for the association this year, both in the Fall conclaves and the Spring convention is "Maintaining Leadership." A memorandum on this subject has been given to the directors and committee chairmen for study and their comments have been so uniformly in accord with my views that I am incorporating the memorandum as a part of this message. Although this memorandum was written several months before I ran across Frank Munsey's motto, you will note that it reflects his sentiment "Conservatism has its place, but it doesn't blaze trails or win battles."

MAINTAINING LEADERSHIP

Ten years ago the electrical industry held a position of unquestioned leadership. It was engaged in vast construction projects—its lines were being extended—new appliances with great public appeal, such as radio, refrigerators and washing machines were being popularized—it held a dominant place in finance—its leaders were prominent in national activities and in national news—men of lesser rank likewise were conspicuous in local affairs and local news—people were eager to learn about new developments and discussed with interest anything that was "run by electricity." Young men wanted to "Work for the electric company" or to "get into the electric business." We were still under the spell of great accomplishments and great names.

Have we allowed this leadership to get away from us? Are people more interested in automobiles, diesel engines and streamlined trains than they are in electrical devices and events? Where once they were fascinated by the mechanics of radio as a function of electricity, they seem now to be concerned only with programs. The employee of the electric company, once looked upon with high regard and sometimes envy, now frequently finds himself on the defensive.

The industry is just as progressive as it ever was; manufacturers are bringing out new devices and improvements in a steady stream; service has been improved and rates reduced; air heating, air conditioning, better lighting, power control, and similar activities are going

forward. Yet, homehow, these do not draw any more comment than a new balloon tire. What got us down?

The industry should again assert itself; it should dramatize what it is doing; it should maintain an offensive position; it should assume its former place of leadership.

How can such a theme be applied in P.C.E.A.?

In the Business Development Section it would quite naturally fit into sales and advertising programs. The discussion of the subject in this group should open new channels of original thinking which would be beneficial to all branches of the industry.

There are more varied types of load building at our command than there were ten years ago. Our rates are much lower. We should be ten years closer to our public through additional advertising and education. What holds us back? What is our competition? Are we going to let it get the lead on us? How can those of the industry who are not directly employed in selling be put on our team? How can we reassert our leadership?

In the Operating Economics Section we might ask "Do we know too much?" Are we being limited by precedent? Are we no longer willing to dare? In an earlier day we built a 33-kv. line when nearly everyone said "You can't do that." We built lines to poorly settled districts when nearly everyone said "That will never pay." We raised voltages and transmission distances and steam pressures. We worked hot lines, changed the style of insulators, dug impossible tunnels, changed the buckets in waterwheels. Are we all through? What are we going to do next? Why can't G. O. 64 be changed? Will d.c. transmission work on the Pacific Coast? Who says so? Was he the same fellow who said that 220 kv. was too high? Is inside wiring one of our problems? Why not? What can we do to simplify it? Is load building our concern? Can we assist in rate reduction by modifying our construction methods? Are we afraid to abandon old ideas? Why should we not continue to lead?

In the Administrative Services Section we find the important activities of public relations. Why don't we bring our story to the forefront of public attention? Haven't we a constructive mouthpiece as good as Henry Ford and why don't we use him? We are doing things far more important to the public welfare than the bay bridges—why not talk about them? How about our employees? Are they giving sufficient attention to these problems to maintain the prestige of the industry?

The main purpose of this memorandum is to provoke discussion. It seems advisable to suggest a theme for the association to work on—otherwise the sections are likely to drift into the old ruts.

● ●

Hints On A Utility's Institutional Advertising*

By EDGAR KOBAK
Vice-President Lord & Thomas, New York; Chairman of the Board, Advertising Federation of America

INSTITUTIONAL advertising, in its relation to Public Utilities, is something too often used when there is a lack of ideas for a specific advertising job. Pretty pictures, broad, innocuous statements, grand stories of interest to us (but not to the hard-boiled man of the street) on how big we are! Lack of results soon cause such campaigns to disappear into the limbo of waste in distribution.

Institutional advertising, briefly, should be what you want people to think of your company or industry as a whole. To be and do good, advertising should tell the consumer in an interesting way the reason-why it is in his interest to buy the wares you have for sale, whether those wares be tangible merchandise or intangible service. Good institutional advertising never gets away from merchandising your company, your products, your standards, your services, or your ideals. It might better be called "institutional merchandising."

Genuine institutional advertising must convince the reader that he should buy, or understand, *because it is in his interest to do so*, rather than because you want to sell him.

Now let's get closer to the utility business. It is an industry of many strong advertising men and women, but an industry where its leaders often fail to heed the sound advice and experience of its own people.

Most utilities are both manufacturers and merchants. They manufacture electricity or gas, and sell their own products as well as appliances made by others. List what you have for sale—continuity of service, general services of all types of appliances, convenience, time for leisure, good will, etc. Tell the consumer what this means to him. Tell it interestingly in plain, simple language and from his standpoint.

Don't let yourself be pushed into trying to buy an editor or publisher through advertising space. If he has to be bought it is better to have him against you. Buy advertising space for what it will actually do to sell ideas or goods. Remember that you need more than pretty pictures or nice sounding words. Get your money's worth. When you fail to make full use of advertising, it proves as wasteful as the wrong sized lamp or oversized motor on the job.

When you start a campaign that is good, don't let the executive force you to jump from idea to idea. Ride a good one through. Continuity of an idea is as important as continuity of service and continuity of advertising.

It is generally conceded that utility executives should be leaders in their community. They should know everyone—see them as often as possible. Every person is either a customer or a prospect. Let your advertising do part of your contacting—your mixing with the people of your city. Talk with your customers in your advertising as you talk with them when you meet them.

Advertising should be used to build more load, develop more customers, sell more appliances. See that your employees know what your advertising objective is. Sell them on your program.

An advertising campaign should be looked upon as a capital investment against future earnings just as a line extension. A good, continuous campaign will attract readers just as a new line attracts customers.

Publicity and advertising must not be confused. Remember — your name is signed at the bottom of each advertisement and you pay for it. Favorable publicity is good, but because it does not carry your signature and is free it does not carry the same weight as does your belief in yourselves.

Good truthful advertising, institutional or product, properly handled will take the uneven load off of publicity and public relations work and let it do its own job. Advertising and publicity must complement each other, but put the major burden on paid advertising.

It boils down to this: Decide what you want people to think of your company or industry and then tell them in an interesting way the reason why it is in their interest to believe in you and buy what you have for sale. Make your advertising as good and as continuous as your service. Its value to you will be in direct proportion to what you put into it.

* An address to the Public Utilities Advertising Association meeting in conjunction with the convention of the Advertising Federation of America, Hotel Statler, Boston, Mass.

Bill Jones Speaks + + +

About Unionism

"BILL," said the Manager, "you once were a labor union man. In absence of ideas on any other subject perhaps you have some on the internal fussing going on in labor circles. Some of the utilities are beginning to find things not going so well among their people."

"Well," grunted Bill Jones, "I suppose that you think you are thinking about John Lewis and Bill Green and the antagonistic theories they represent. It will be a pretty row, but in the end Lewis and his one big union will lose out; or, if temporarily successful, it will quickly go to pieces. One thing which amateur students of labor, and which leaders of labor overlook, is the fact that it is composed of just plain human beings—'even as you and I.' Human nature continues 'as is' whether it manifests itself in the mighty or in the ditch digger.

"In my younger days I was a rampanting dynamiter myself and a great believer in direct action. I used to go home and just cram the little three-room shack we lived in chuck full of six-hour days and double-time and the tyranny-of-the-employers and all of those things that the boys are shouting about now with as much vigor as they did then. I remember one evening along about 11 o'clock that I was discoursing learnedly and profoundly on the brotherhood of man for the edification of Molly—that's Mrs. Jones—while she was darning my socks, and had got so all-fired heated up that I had to open the outside door and the kitchen window. The lady who finally and conclusively makes up our mind for us, flung the socks on the floor and exclaimed:

" 'Brotherhood of man! Bosh! Bill Jones, you don't know what brotherhood of man is, and if such a thing could be accomplished right now you all would hold a meeting tomorrow night to take a strike vote on it, and that big-mouthed walking delegate would tell you how you were being soft-soaped and deprived of your individuality and demand that you start a revolution to assert your independence of any such moddlycoddle scheme. You are working eight hours a day and throwing away eight more, talking about what you would do with your spare time if you were working only six. You whine that labor needs shorter hours so it can spend more of them improving itself for better things. I suppose Abraham Lincoln would have developed into quite a man if he had had to work only six hours a day, and no overtime, so he could have found leisure to study a bit evenings. You've got plenty time right now and are too lazy in the head to use it. Six hours, indeed. How are you going to get more of this world's goods if you work less to produce them? If you are really suffering for the brotherhood of man, why don't you practice some of it? While you are spouting to get your own day cut down to six hours, has anyone interrupted the flow of oratory to suggest that you make some effort to get the working hours of your wives cut down to say twelve or fourteen? And then you talk about the iniquities of the capitalistic slave driver?

" 'The Four Brotherhoods of Railway Trainmen seem to have more power and more leaders with heads above their neckbands than any union your gang belongs to. Did you ever hear of them trying to improve the condition of other railway workers? Do they care what wages are paid to the sectionmen or the freight handlers, or what their living conditions are? Don't they profit by the small wages paid the other railroad men and then refuse to associate with them because they are poor inferior worms? Shucks, the only place on this earth where there can ever be a brotherhood of men is in the penitentiary.'

"And a few days after that explosion, Molly had another spell and continued: 'Bill, the trouble is we aren't self-contained units. And so, instead of living for ourselves and within ourselves, we are living to set a pace for someone else, or to keep up with the pace which someone else has set. It isn't lack of comfort we are suffering from, but resentment and envy for the things which others have, whether we really want them ourselves or not. I would be perfectly contented to always dress in calico if every other woman in town also dressed in calico, but just as soon as Mrs. Mooney lays aside her calico and blossoms out in silk alpaca the world immediately takes on a sombre hue for me and it's going to keep on being gloomy until I get a silk alpaca.

" 'You keep thinking that it is more dollars that we are striving for. It isn't dollars at all we want but Things—more Things. If we could forget dollars we would comprehend a lot of matters that seem obscure now. What we are interested in is how many hours of your labor—not dollars—will be necessary to exchange for the Things we need: Food, clothing, luxuries. You are always crying that labor produces everything but doesn't get its share of what it produces. If it is true that labor produces everything how are you and everybody else going to have more Things if you and everybody else work less and make fewer Things. It just can't be done and you are defeating and making impossible the very thing you are hoping for. What we need is more and more Things, not fewer; more labor-saving machines; longer hours instead of shorter, in which to make them and to make them cheaper.'

"Well, Molly delivered this sermon back in the horse-and-buggy days before the economy of scarcity had been sanctified, but the lady had arrived at a great truth that will come to light some time when reason and common-sense again becomes respectable.

"Thirty-five years ago I was working on the old Comstock Lode mines in Virginia City, up in Nevada. Virginia City then, as now, was a 100 per cent union town. Even the Cousin Jacks and the Irishers could get together when it came to unionism,and it would have meant tough luck for any profane amateur to have even touched a pick or a shovel. In my day most of the miners didn't have families and so they ate in the restaurants. The boys didn't come up to the surface for lunch and it was quite a sight to see the hundreds of buckets stacked up in the eating places in the morning. There were a lot of accidents and deaths in those days, just as there always are in deep mining. Every once in awhile the widow of a union miner would start a boarding place with home cooking and thus fill an apparent need for a union eating house. They always went broke. Of course, the principles of unionism and brotherhood were things to die for but the strongest union town in the West insisted on patronizing the Chinese restaurants exclusively.

"So together Molly and I have given you the answer to all questions and the fundamental psychology and the philosophy regarding labor matters which may come into your alleged mind—if you are capable of translating them."

Engineering Symposium + + +

[A monthly forum in which engineers will present and discuss their problems, this department is dedicated to advancing the art of power generation, transmission, distribution and utilization]

Analyzing System Disturbances With the Automatic Oscillograph

By T. M. BLAKESLEE
Los Angeles Bureau of Power & Light
Los Angeles, Calif.

SINCE 1928 the Los Angeles' Bureau of Power and Light has been applying the magnetic oscillograph to the study of system faults. In that year a six-element machine was placed in service at the Bureau's receiving station "A." Three years later an installation of two, three-element oscillographs equipped for automatic operation was made at receiving station "B." This equipment has kept pace with the latest development of automatic oscillograph apparatus by adding improvements such as the preheated lamp filament and automatic resetting magnetic shutter. To date the apparatus has recorded some 400 system disturbances, the analysis of which has given much interesting and in many cases very valuable information.

In this and a subsequent article it is proposed to review the features of automatic oscillograph equipment installed in major power stations for the general study of system faults. Formulas will be presented to show the fundamental method of analyzing oscillograph records to determine the short-circuit currents for each of the various types of three-phase disturbances. Fault oscillograms obtained by equipment on the system of the Los Angeles Bureau of Power and Light will be analyzed as practical examples of this work. There are, of course, many cases of automatic oscillograph installations for the study of special phenomena to which the material presented here is only indirectly applicable.

Initiating Devices

To obtain maximum use of oscillograph equipment, initiating schemes for automatic installations should be designed to catch as many system disturbances as possible. One common actuating method uses overcurrent relays placed in the power sources of the station. Disturbances on the load circuits or on the power sources (transmission lines or synchronous machines) are accompanied by excess current which places the apparatus in operation. To insure tripping on all phase-to-phase faults, overcurrent relays are placed in two of the phases or one relay is energized with positive sequence current.

A negative sequence current relay, supplemented by an overcurrent relay in one phase, furnishes a very good system of initiation. This method may do away with ground-current relays since with single-phase-to-ground faults the negative sequence current is one-third the total ground current. In general, however, it is desirable to supplement overcurrent starting by sensitive ground-current relays to secure oscillograph operations on the sometimes meager currents associated with remote ground faults.

Another very satisfactory method of starting automatic oscillograph equipment on the occurrence of system disturbances is by undervoltage relays. This is especially true if the oscillograph installation is at a station some distance from the point of power generation because faults normally are accompanied by a reduction in voltage. To catch all types of faults the undervoltage relay should either be operated from positive sequence potential or from the output of a three-phase rectifier. While this method of starting may dispense with the excess line current method, it usually will be found desirable to supplement the undervoltage relay with ground-current initiation.

In many installations the successful use of undervoltage initiation is hampered because of duplicate potential transformer systems with the attendant throw-over switches. Every time the station attendant throws from one set of transformers to the other the undervoltage relay starts the oscillograph giving undesirable operations. For temporary installations this usually is not serious but in permanent set-ups this drawback may be of such import as to prevent use of the undervoltage method of initiation. However, the difficulty may be surmounted by installing a blocking pushbutton which may be depressed by the station operator to prevent operation of the oscillograph whenever the potential throw-over switch is used.

Installations in France have supplemented overcurrent and ground-current relays by a negative sequence voltage relay for actuating automatic oscillograph equipment. This system is free from the drawback of potential throw-over switches provided the contacts of the switch are carefully adjusted to operate simultaneously. Although the usual disturbance starts as an unbalanced fault, negative sequence voltage initiation, when used alone, fails when disturbances start three-phase. Failure also may be experienced on light single-phase-to-ground faults because, as frequently happens with this type of disturbance, there may not be a sufficient quantity of negative sequence voltage to trip the relay. It is always necessary, therefore, to supplement the negative sequence voltage method of starting by ground-current relays and advisable to add excess current relays.

Time-Delay Equipment

It is desirable to operate the automatic oscillograph equipment for the duration of the trouble and for a brief period thereafter to obtain a complete picture of the disturbance and its effect on the power system. Some sort of time-delay device is required to accomplish this either operating on the thermostatic principle or on some other well-known scheme.

With equipment initiated by excess-current relays in the power sources, it is always necessary to provide relay equipment to "short out" the initiating relay coil to prevent the normal load current from maintaining closed contacts after the system disturbance is over. With this set up it is usually necessary to start the time-delay device at the start of the fault. For most situations the time-delay relay may be judiciously adjusted to satisfactorily catch the majority of troubles. There remains, however, the infrequent, unusually long and, therefore, unusually important disturbance, about which this

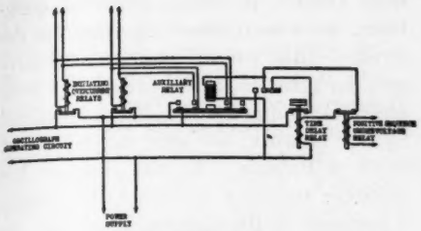


Fig. 1—Oscillograph operating scheme for obtaining continuous records regardless of the length of the disturbance. Positive sequence undervoltage relay controls operations after the overcurrent relays have initiated them

method does not give a continuous record. The action of the time-delay device (if of the relay type) when the fault time is prolonged is to momentarily cut off the oscillograph equipment until the overcurrent actuating relay, finding its short circuit removed, starts the operation sequence for another time interval. While the few cycles of fault record lost by this momentary interruption may frequently be spared, it is an advantage to obtain continuous records of both the short and long disturbances.

With undervoltage or with ground-current initiation, since there is no necessity for opening the contacts once they are closed, it is relatively simple to maintain continuous operation for the duration of the trouble. Even with excess-current relays in the power sources it is possible by the use of some additional relay equipment to meet the requirement of continuous operation. Such a scheme is shown in Fig. 1. There it will be seen that, while initiation of the apparatus is secured by overcurrent relays, the positive sequence undervoltage relay prevents the operation of the time-delay device, which controls the type M auxiliary relay, until the restoration of normal voltage by the clearance of the trouble.

Operation Indication

In all cases of automatic oscillograph installations some sort of operation indicator is required. Early installations employed the conventional bell alarm requiring manual reset. A scheme which has advantages over the use of a bell is obtained by arranging a synchronous clock to stop on the occurrence of the oscillograph operation. This method does not disturb a station attendant already beset by sounding gongs at the time of a system disturbance. In cases of trouble involving the relaying of circuit breakers at the station, the operator tends to the regular station alarm first then, at his convenience, he notes the clock and records the exact time of the oscillograph operation which is also the exact time of the system disturbance. He then resets the clock and everything is in readiness for the next case of trouble. By using a type of synchronous clock that is not inherently self starting the necessity for a lock-out relay is avoided.

Normally the bell alarm or synchronous clock method of notification is sufficient. However, as sometimes occurs, system disturbances come in rapid succession with insufficient time in between for the operator to shut off the alarm or reset the clock. Then this method of checking automatic oscillograph operations is inadequate. Even in these cases it is sometimes possible, knowing the nature of each disturbance, to correctly diagnose the oscillograph records. Such devices as a film-footage indicator or a meter to indicate the number of operations, or both, will be found helpful in correlating records with disturbances. If such situations are encountered frequently, recording time by photographing a clock or by making a mark on a moving chart on the occasion of each oscillograph operation may be justified.

Growing complexity of every system makes it necessary to have more factual information on operating conditions particularly during disturbances. The automatic oscillograph has become indispensible in aiding engineers to analyze performance and select apparatus economically. In this series of two articles, Mr. Blakeslee discusses the technique of the application of the oscillograph and the methods of record analysis and interpretation.

The Editors.

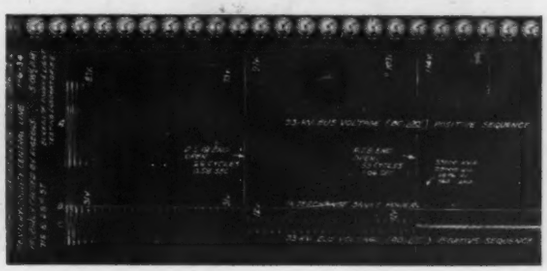
Use of Recording Elements

Aside from an efficient actuating system and a method of indicating operations a good deal of thought can profitably be given to the best use of the available elements or available element positions, there being several types of galvanometers from which to choose. Frequently, of course, only special phenomena are to be investigated by more or less temporary set ups but for the general study of system fault situations certain more or less permanent combinations will usually be found desirable.

Voltage elements. — The measurement of station voltages should be given prime consideration for it is by the records of potential that such conditions as the type and the severity of the disturbance are judged. The relation between the phase voltages is a criterion as to whether the disturbance was one of the three unbalanced variety or whether it was a balanced 3-phase fault. The long-established veracity of Ohm's law holds in the study of system disturbances just as it does in the considerations of the primary cell. The shock of a disturbance to the electrical system as a whole is proportional to the drop in bus voltage or the ability of a system to withstand these shocks is measured by its ability to maintain voltage under these adverse conditions.

If the station is equipped with three star-connected potential transformers and three elements are available the three star voltages may be recorded. Usually, however, it is only under special conditions that three potential transformers are available and it is not always desirable to tie up three of the too few elements available for the measurement of voltage exclusively. Two galvanometers may well be set aside for the measurement of the station bus voltages regardless of the potential transformer system available.

With the common situation where two potential transformers are connected in open delta, two elements may be used to measure two of the delta voltages. If care is taken with the polarity of connections (a detail which should never be overlooked), the third delta voltage may be approximated by measuring the angle between the two recorded voltages. Of course, the film speed must be sufficient to permit measurement of this angle. This is the simplest method but not the most satisfactory. Much better use is made of the two elements devoted to the measurement of potential if networks are employed to resolve the three delta vol-



Oscillogram with motion picture timing film stripped in gives complete information on fault

tages into their positive and negative sequence components. Convenient, reliable, and efficient networks for accomplishing the resolution of voltages into their symmetrical components are available. Here again care should be taken to connect the elements in their proper and known polarities if the maximum available information from this connection is to be realized.

Many advantages are gained by the measurement of the sequence potentials over the measurement of two delta voltages. The positive sequence voltage is the best indicator of fault severity regardless of the type of disturbance for it is upon the flow of positive sequence power that the stability of a system is maintained. The ratio of the negative to the positive sequence voltages gives at once, in conveniently expressible terms, the degree of system unbalance resulting from the fault. The magnitude of the actual 3-phase voltages may be determined from the positive and negative sequence records by measuring the magnitudes of and the angle between these two voltages. The determination of the actual voltages from the positive and negative sequence components is less affected by errors in the measurement of the angle between these two quantities than the determination of the missing voltage when two delta potentials are recorded. This is important in view of the difficulty of accurately measuring the angular difference between recorded quantities. With moderate film speeds the measured angle may be off as much as 30 deg., which is still not serious with symmetrical component voltages but causes appreciable error in completing the delta from the records of two actual voltages.

The necessity for reversing one of the regular meter voltages in the measurement of sequence quantities has led to the common use of small 100-1 potential transformers in the measuring network. The elements recording the sequence voltages are thus electrically separate from the regular station meter potentials permitting easy superposition of small direct-current components shifting the zero of these elements to indicate switch operations or other events during the course of the disturbance. Switch indication is very helpful in the analysis of fault oscillograms as it definitely tells which end of the troubled line opened first when the sequence of switch operations otherwise might be in doubt. This indication also enables the total fault time to be divided into that required for the relays and that required for the oil breaker.

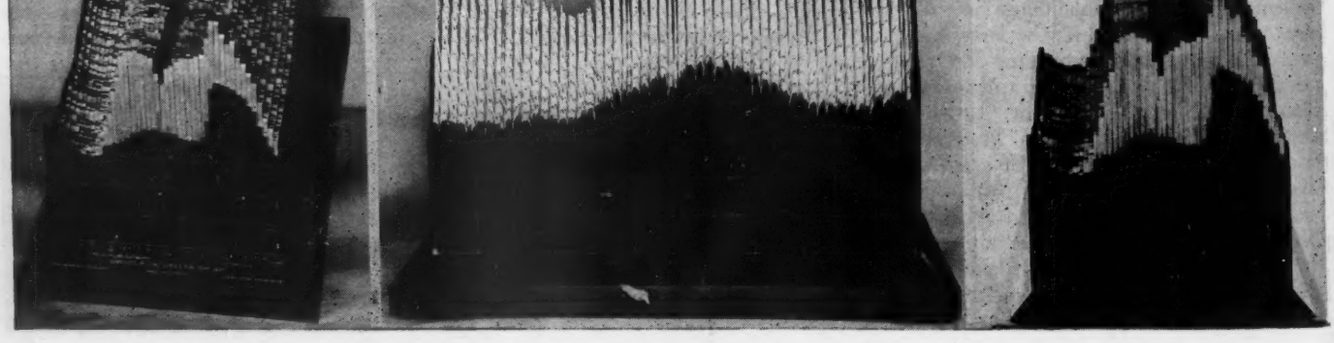
The measurement of symmetrical component voltages has some disadvantages which should be noted. The metering circuit is more complicated than the simple series resistances necessary for the measurement of the actual voltages. The fidelity of the recorded quantities is affected by frequency. With the conventional network the records suffer a 30-degree shift in phase position which, since both positive and negative voltages are moved in the same direction, involves no concern in the determination of the actual delta voltages but must be carefully considered if the phase position of these voltages with respect to other recorded quantities, such as ground currents, is desired. This phase position difficulty may be surmounted by calling the symmetrical component voltages resolved by the network, the star instead of the delta potentials. In the case of the negative sequence potential this entails a reversal of the element terminals because the star negative sequence potentials lag instead of lead (as in the positive sequence case,) the corresponding delta quantities by 30 deg. Also the element calibrations have to be based on the star rather than the delta potentials. This change from delta to star quantities is often very convenient because of the general use of star voltages in fault analysis work.

Even in the case of star-connected potential transformers the two elements appropriated for potential measurement may best be used to record positive and negative sequence voltages. With this connection of instrument transformers, the sequence network must be connected to the phase-to-phase voltages furnished by the star connection to eliminate zero sequence potential.

Current elements. — The currents most desirable in the study of system disturbances are those which are probably most elusive to direct calculation—ground currents. The connections of the transformers or machines at the station where the automatic oscillograph equipment is installed will determine the ground currents to record. It is common practice to terminate transmission lines with star-connected transformers with the load sides either

Model Portrays System Loading Throughout Year

Plotted in this model are 17,250 points, one for the average system loading of the Pacific Gas & Electric Co. for each half-hour of 1935. The "elevation" of a point represents kilowatts. At center, side view, each profile followed from left to right represents day by day fluctuations at a particular half-hour, the foremost one being midnight at the end of the day. At right, end view, each profile followed from left to right represents half-hourly fluctuations throughout a particular day, the foremost one being Jan. 1, 1935. Peak load was 857,900 k.w., at 10:30 a.m., Tuesday, Aug. 13. The plateau of summer pumping load, that for winter lighting load, the ravines of Sunday, the pits of holidays—all appear in the faithful contours. Valuable in visualizing and explaining system loading, the model was exhibited in Washington, D.C., at the Third World Power Conference



delta connected or star connected with delta tertiaries. The ground current of the transmission line is of course desirable on the oscillograph record as well as the neutral current on the load side of the bank. It is easy, however, to tie up valuable oscillograph elements needlessly for the measurement of neutral currents and each situation should be studied with this thought in mind.

It is rarely justifiable to measure any or all of the line currents unless some individual situation is under investigation. Much more information can be had by installing some type of power element in the available galvanometer positions.

Power elements—Utopia in power measurements for the automatic oscillograph engineer is the utilization of two single-phase instantaneous watt galvanometers to record positive and negative sequence power in each of the station's power sources. These elements when supplemented by galvanometers recording symmetrical component bus voltages with the oil circuit breaker indication heretofore described, and zero sequence or neutral current furnish about as complete information as the student of system faults could desire. As the necessary element positions and the necessary appurtenances required for the measurement of all these quantities are not always available, the situation usually resolves itself into that of making the best use of the equipment at hand.

Manufacturers have developed ingenious watt galvanometers for recording instantaneous or average 3-phase power in 3- or 4-wire circuits or for recording instantaneous or average single-phase power. The 3-phase elements are useful in many cases but they have the disadvantage of not indicating power factor. The single-phase instantaneous watt element, while it records only the power in one phase, does indicate power factor. With balanced 3-phase faults this indication is a valuable adjunct to mere power measurement. With unbalanced disturbances this feature often permits the determination of the line current and its position with respect to the station voltages which information is especially valuable for this type of trouble.

Thus, if the necessary elements are not at hand and the sequence networks are not available, instead of positive and negative sequence watt elements, one single-phase watt element in each power source may be used. This connection will give, for balanced faults, all the information obtainable from the use of sequence power elements. On single-phase-to-ground faults power elements are not necessary for fault current determination if the total station ground current is recorded. On phase-to-phase disturbances, the currents usually may be determined from the single-phase watt elements on all but faults involving phase currents not used in the power element's series circuit.

By "number of power sources" is not necessarily meant the number of transformer banks. Synchronous generators or condensers on the station bus are considered as power sources. Transformers in parallel constitute only one power source and complete information may be had by the measurement of the power delivered to the station by one of the parallel banks; the total power input from this source is obtained from the impedances of the transformers. If the station operating program calls for rotation in the use of parallel banks then it is sometimes possible by a parallel connection of current transformers to still record the total input on one watt element. This applies also to the problem of recording total ground current returning to parallel connected power transformer banks.

The difficulty of accurately measuring phase angles between recorded currents and voltages, especially with slow oscillograph film speeds, and yet the desirability of obtaining these angles in the analysis of fault records suggests the use of single-phase watt elements for angle determinations. Thus to obtain the magnitudes and phase relations of the currents and voltages and yet to avoid the approximation of these angles from the relative positions of the actual recorded quantities the following arrangement may be employed: Use standard elements to record each of the three delta station bus voltages and use a single-phase, instantaneous, watt element to determine the angle between the ground current and one of the bus potentials. This may be accomplished by energizing the current coil of the watt element with the ground current and energizing the potential coil with one of the phase voltages. The angle relations between the delta voltages may of course be obtained from their property of forming a closed triangle.

The advantages of knowing both the magnitudes and phase positions of the station bus voltages and the total fault ground current will be brought out in the second and concluding article of this series.

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• VANCOUVER ELECTRICAL ASSN. has received permission of the electrical department at Vancouver, to proceed with the installation of trial electric range wiring on old houses only, using service entrance cable. This type of installation is being conducted as an experiment, the object being to test its practicability in reducing installation costs in old homes. New residences, however, must be up to the former requirements.

Mountain of Energy

This huge pile of hog fuel, containing 40,640 units (200 cu.ft. per unit) stands on east bank of the Willamette River at Portland. Moved by conveyor from the Inman-Poulsen Lumber Co. sawmill (at right), it is destined for the boilers of Station L, Portland General Electric Co., (left foreground). From each unit will be generated 800 kw.-hr. Called Mt. Osborne, it is named for C. P. Osborne, general superintendent. Across the river (not shown) stands Mt. Dennis, named for Walter J. Dennis, general manager, Northwestern Electric Co., containing 32,000 units. Both mountains grow during spring and summer, stand ready for steam generation during autumn low water

Control Gaps Provide Station Protection Against Lightning

By A. M. BOHNERT
District Engineer, Ohio Brass Co., San Francisco

PHENOMENA of lightning charges and discharges are still not completely understood but their occasional destructive effect on terminal apparatus is well-known. Laboratory studies have revealed much of the nature of lightning discharges and many tests have been conducted to make equipment better capable of withstanding these surges. While these tests have revealed the nature of surge failures, a method of preventing them has been most difficult to find.

The voltage of the lightning surge runs into millions and is not released onto a system gradually but rather is dumped instantly and with full force. An ideal lightning protection device must function faster than any other connected equipment can flashover or fail at any voltage and current. It so happens that because of electrical inertia known as time lag, much of the protective equipment in use today cannot operate with the speed necessary to relieve this large and sudden voltage without some of it entering and perhaps damaging station equipment.

Any dielectric—gaseous, liquid or solid—will flash over or fail if subjected to a potential of sufficient magnitude and duration. Liquid and solid insulations have very short time lags and when subjected to surge voltages that are at or above minimum required to produce breakdown, will fail in a relatively short interval of time. In other words, such insulation when subjected to a destructive over-voltage will break down within a few microseconds if it will fail at all, as indicated by "a" in Fig. 1. Flashovers of bushings or supporting insulation may be delayed for considerably longer periods of time after the application of an impressed voltage just sufficient to produce flashover as at "b", Fig. 1. With voltages increasing beyond this minimum, although the time delay becomes increasingly shorter, there is a considerable voltage increase before such delay approaches the short time associated with the failure of liquid or solid insulation, "c" Fig. 1.

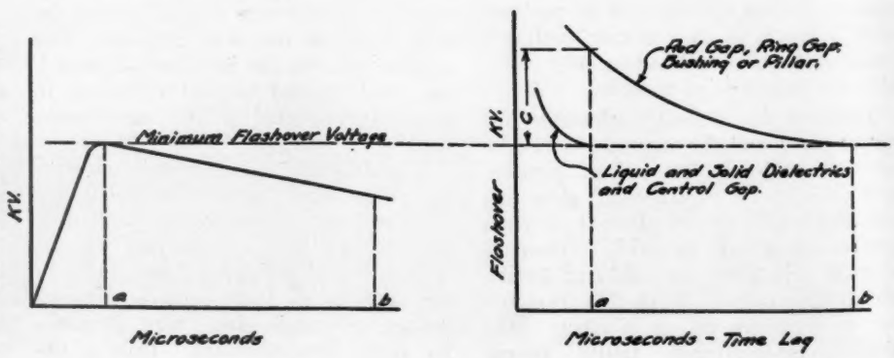
In studying the characteristics of the equipment requiring protection against lightning, we find that high voltage equipment is designed to function efficiently at some rated power frequency voltage. Tests are readily conducted to determine the safety factors and other necessary limits. For instance, the amount of power frequency potential that major transformer insulation will withstand before failure is calibrated, as is the flashover of bushings, breakdown of oil, etc. But in protection against lightning transients the time element is of major importance. Protective equipment, on the other hand, may be in close agreement at normal frequency and low crest surges, but may require considerably more time to arc over on high voltage lightning surges, imposing more voltage for longer time than the apparatus insulation can withstand.

We may conclude that the service of a transmission system is only as effective as its insulation. This would lead us to consider the possibility of so coordinating equipment connected to a high voltage system, that the less expensive equipment would act as a protection for the more expensive. For instance, if transformer insulation failed, the interruption to service, the delay in replacing the equipment, and the cost, are serious factors. If the transformer bushing would arc over or if the other station insulation would arc over and so protect the more expensive equipment, an important objective would be achieved. A natural conjecture, therefore, is to so design the equipment that the transformer insulation has the highest breakdown strength, bushings next, and reduce the other station insulation so that it would always arc over first. This is an excellent and obvious objective, yet one that is most difficult to attain within economic reason. The difficulty lies in the time lag characteristics of the various elements. Apparatus internal insulation has a time lag characteristic unlike that of practically any other connected equipment. Since the time delay in breaking down these insulations is short relative to that of other equipment, if the same breakdown level is maintained throughout, the internal insulation would fail before the time delay of the external insulation would permit them to flash over and thus protect the equipment in question.

To design a transformer with a higher insulation protection level than the transmission system, becomes economically impractical. So here again we find a definite need and reason why station equipment is usually associated with some external means of limiting the possibility of damage from lightning. While such protective measures as lightning arresters, ground wires, limiting gaps, increased insulation, improved distribution of dielectric stress, and various combinations of these safeguards have established merit, much is still lacking before the ideal protective device is obtained. It is recognized that this protective equipment is not infallible because occasional failures from lightning still occur. This indicates the need for a protective device that will limit any type of overpotential surge and divert it to ground without the time delay which is such an important factor in the analysis of protection. A preferred device would have a short time lag dependent solely upon surge voltage applied and independent of subsequent energy diversion through the device.

After considerable research and study there has been developed in the laboratories of the Ohio Brass Co. a protective device which has been termed a "control gap," which extends protection beyond existing limits. This control gap comes closer to satisfactorily diverting lightning surges to ground in the shortest possible time under both wet and dry conditions than any other equipment in practical use today as shown in Fig. 2. Because this new device affords protection which closely parallels the flashover characteristics of internal insulation, its function as a protective means is more positive. This

Fig. 1—Volt-time characteristics



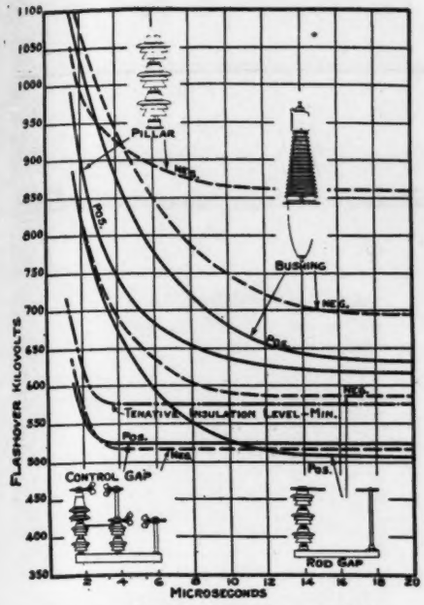


Fig. 2—Application of control gap to station protection

is particularly true of severe strokes of lightning occurring near or at the station.

When ordinary gaps, such as rings, rods, and even insulators themselves, are set electrically high enough to minimize interruptions from lightning with a low crest and long duration, and switching surges, they seemingly offer little or no comparative protection as a spill gap for the severe strokes of lightning which hold the greatest destruction. Should the protective level be lowered on some of the previously mentioned protective devices, the compromise is attended with the risk of more frequent interruption to service.

In the control gap, arcing electrodes are surrounded by insulated metallic surfaces conductively connected to the electrodes so that the dielectric field is increased greatly in size beyond that existing in the vicinity of the points. The arcing electrodes are so designed and spaced that they will not be subject to corona formation at operating voltages, or at the lower voltage surges. When subjected to a high voltage surge, the surrounding insulated electrodes effectively distribute the electrostatic stress over a larger area similar to that attained in sphere gaps. The time lag present in red gaps is therefore eliminated so that the characteristic very closely approaches the short time lags associated with spheres but without the undesirable low wet flashovers.

These control gaps will work effectively on surges of either positive or negative polarity. Because the characteristics of the control gap closely parallel those of the insulation which it protects, it will allow lightning arrest-

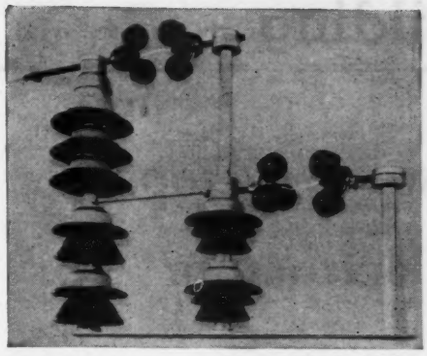


Fig. 3—Control gap rated at 115 kv. in operation

ers, for instance, to handle ordinary transients within safe values without causing a system outage. Should a lightning stroke occur at or in the immediate vicinity of the station, producing a surge with a very steep front—one which is faster than the operation of the usual protective devices—the control gap will effectively ground the surge within a sufficiently short time to prevent damage to costly equipment. When this happens, service is naturally interrupted, but it is better to protect equipment and tolerate an interruption in service rather than to be forced to tolerate both the failure and the outage.

On the other hand, the station engineer does not wish to have his protective equipment operating unnecessarily. In practice it is necessary to limit the magnitude of the incoming lightning surge and yet place this protection at a high enough level so that every surge of minor proportion would not render the station inoperative. In this connection, with the control gap set to handle only the higher surge voltages, the occasions when this gap would operate would probably be few. One such operation, however, would more than justify the cost of the installation. When used in this connection, control gaps may be said to afford back-up protection to lightning arresters.

The control gap may be adjusted for any setting desired to fit particular or peculiar operating conditions. It can be used either as back-up protection for lightning arresters or may serve as the only protection against lightning included in the station set-up. It will function under successive overvoltages no matter how rapid their recurrence—entirely eliminating that questionable period when lightning may re-strike. Interruptions to service may be minimized or eliminated by the use of quick reclosing breakers, which would return the system to service immediately after gap flashover. The control gap is reliable and positive in its action as it is directly connected to ground, with no resistors or impedances.

Compared to the equipment protected, these gaps are relatively inexpensive and may be included in the specifications for new stations or added to existing stations without the cost factor becoming a formidable consideration.

New Distribution Unit Saves in Substation Costs

A new self-contained primary distribution unit, recently installed by a western utility, typifying a trend in substation construction. It consists of a 1,500-kva., three-phase, 60-cycle, 11.5-4.1-kv. transformer together with a metal-inclosed switch house.

The transfer is equipped for automatic tap changing under load, having a seventeen-position, 1¼ per cent step, 10 per cent buck or boost capacity below 11.5 kv. and four additional 2½-per-cent variable taps, two above and two below normal rated voltage. Built as an integral part of the main transformer is a 5-kva., three-phase auxiliary transformer for auxiliary power.

The switch house consists of a two-compartment, outdoor metal structure containing a cross tie breaker and an automatic reclosing primary breaker for the transformer. The secondary is direct connected to a feeder circuit consisting of three-phase, four-wire, 4150-volt cable.

The substation was installed to relieve downtown feeder circuits in supplying the increased load resulting from air conditioning installations in the business and residential sections.

Advantages are the compact arrangement which limits the required ground area, a decided advantage in metropolitan areas, and the ease of installation, all that is required being a concrete slab through which primary and secondary connections are brought in underground. Inasmuch as there are no exposed parts public safety is protected. The absence of overhead structure makes the substation unobtrusive to the eye and permits attractive landscaping.

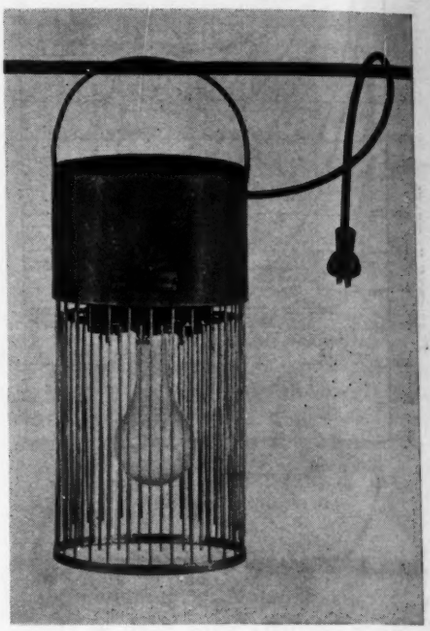
Metal-clad, self-contained distribution unit typifies modern trend in expansion

Diversity of Uses Developed for Insect Electrocutor

Experiments in control of insects with monochromatic light conducted by California C.R.E.A. indicate a wide field of application outside agriculture as shown in this article. A second article next month will describe latest experiments in protecting vineyards.

AN ever-widening field of application of light for insect control is indicated by the experiments being conducted by Professor W. B. Herms and Joe K. Ellsworth, of the University of California, under the sponsorship of the California Committee on the Relation of Electricity to Agriculture. Aside from the control of insect pests in agriculture, which is of major importance, an entirely new field has developed where insects are a source of personal annoyance, or where they may be used as food for fish, frogs or birds.

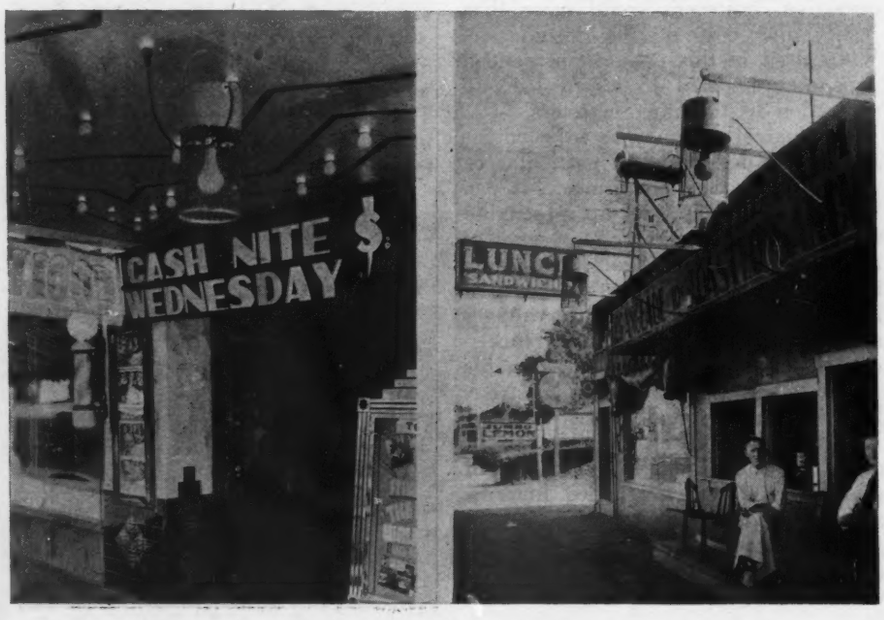
Supplementing the work with monochromatic light which has demonstrated definite advantages with various agricultural crops, applications have been made with insect electrocutors using white light to attract and destroy all species of insects at one time. Typical of the successful applications of colored light to control specific insects are pale blue light for the grape leafhopper and midnight blue for the artichoke plume moth. Use of traps equipped with white light has been proved to be particularly effective in service stations, outdoor cafes or taverns, swimming pools or any place where people gather at night under the usual form of artificial illumination. The rapid extension of garden lighting has been partially responsible for this latest application. Owners of illuminated gardens in the San Joaquin Valley complained that lights attracted insects to such a degree as to detract from the pleasure of using the gardens at night. Search for some method of control resulted in the installation of the insect electrocutors. The immediate success of this application led to the introduction of these units wherever illumination attracted insects in such numbers that they became a source of personal annoyance. As a result many insect traps have been installed in various sections of California for the specific purpose of destroying bugs attracted by the normal lighting equipment.



Special equipment was developed for the experiments in controlling insects with light. Here is the latest type of electrocutor equipped with a Mazda lamp made by Dr. L. T. Jones, of the Monolite Co., Berkeley

Insects attracted by this lighted theater marquee in Madera are killed by an electrocutor

Customers are not annoyed by insects at night at this outdoor cafe which has installed two electrocutors



Noteworthy applications include several in service stations, outdoor cafes and under theatre marquees in various San Joaquin Valley communities. Usual procedure is to replace one or two of the normal lighting units with an insect electrocutor equipped with a 60- or 150-watt white Mazda lamp. Ordinarily the lamp in the trap is of a higher intensity than the other sources of illumination. Traps are installed at the corners or in the center of the area to be protected.

Traps have been installed succesfully in playgrounds which are illuminated for night use. Rapid extension of lighted soft ball playing fields has opened a new field for use of the traps. In instances where insects are a source of annoyance to players and spectators, traps equipped with 200-watt lamps have been suspended below the high intensity light sources.

Still another field of application for the insect electrocutors has been developed for frog and fish farms. Here the trap is hung over the ponds and as

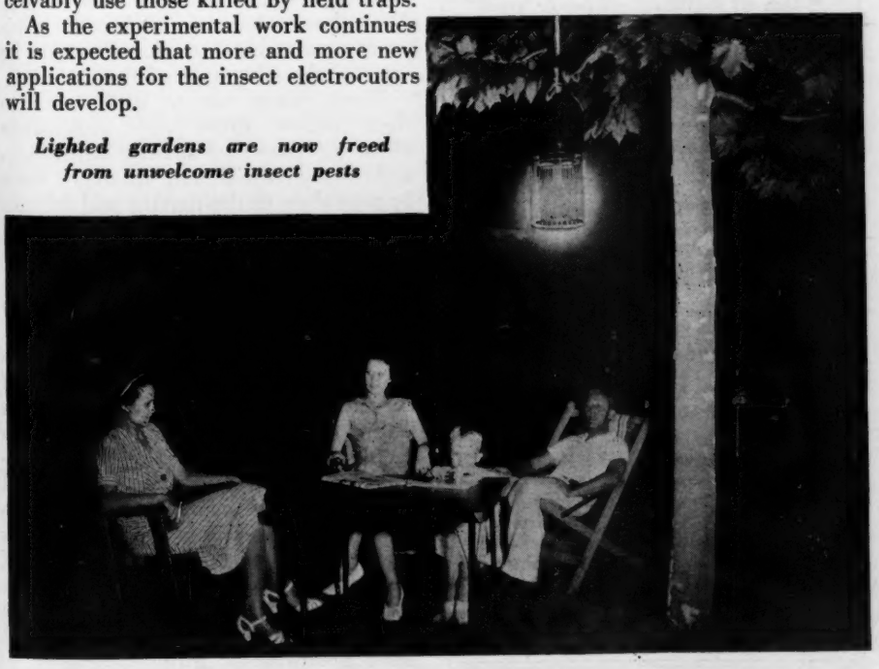
Electrocutor installed in a soft drink stand in the San Joaquin Valley. The pan attached to the base is to catch the insects and is not a part of the unit

the electrocuted insects drop into the water they are devoured. Traps also have been installed over chicken and turkey pens for the purpose of supplying natural insect food to the birds. This has proven efficacious particularly in the case of turkey poults. Game farms engaged in raising pheasants, partridges and quail for replenishing hunting areas also are potential users.

This use of the traps leads to speculation as to possible utilization of the insects killed in traps installed for crop protection. Raisers of tropical birds and fish who now import dried and processed insects for feeding could conceivably use those killed by field traps.

As the experimental work continues it is expected that more and more new applications for the insect electrocutors will develop.

Lighted gardens are now freed from unwelcome insect pests



Greenhouse Designed for Heating by Electric Light

POSSIBILITIES of marked changes in greenhouse design in which natural light is largely excluded and the ordinary heating plant entirely eliminated are indicated in experiments which have been conducted by the General Electric Co. with cooperating utilities and plant research agencies. Artificial light from incandescent lamps which can be regulated to produce the desired results has been substituted to a large degree for sunlight and the radiant energy from the same lamps constitutes the sole source of heat.

In the new type greenhouse the walls, ends, floor, and one side of the roof were built of heat-insulated materials, and a single row of sash placed in the other side of the roof. The roof angle was modified so that the maximum amount of sunlight was obtained during the winter months when the intensity was lowest. The interior of the house was painted white, and 300-watt incandescent lamps in reflectors installed for the dual purpose of supplementing daylight and heating the structure.

The new structure has the advantage of not requiring a heating plant. Its operating cost proved comparable with that of a regular greenhouse heated with coal and its maintenance was considerably less, as there was no heating plant to operate. The construction of the house itself was more economical than that of the all-glass type. It was found that plants could be brought to bloom sooner, that their quality was better, and that there were better possibilities for the control of parasites. In fact the heat-insulated greenhouse made it possible to predict almost to a day the blossoming time of any plant and to bring about blossoming at any season of the year.

The trial house was built by using a framework covered inside and out with sheets of galvanized steel, and the six-inch space between the walls was packed with dry sawdust. The window section was in the south side of the roof with the sash set at an angle of 52½ deg. to the horizontal—in a position perpendicular to the sun's rays at noon at a point halfway between the autumnal equinox and winter solstice, and again between the winter solstice and the vernal equinox.

Artificial lighting equipment consisted of 500-watt incandescent lamps with reflectors, hung on counterweighted cords so that they could be raised or lowered to accommodate plants. The lights were controlled with a single thermostat which turned them on at approximately 62 deg. F. and off again at 68.

Under these conditions during a 24-hour period, when the outside temperature averaged 2.9 deg. with a maximum of 13 and a minimum of one below zero the lamps came on at about every 33 min. during the night, and not at all during the day. In general the total artificially lighted period was four hours out of each 24—which is the amount of supplemental lighting most beneficial to plant growth.

So intense was the heat from the lights that on bright days it was necessary to open the windows to keep the temperature from going too high. The 500-watt lamps were later replaced by 300-watt lamps. The size and mounting height of the lamps depend upon climatic conditions.

Various flowers were planted in this house, and similar plants set out as controls in a conventional glass house. The plants in the new house grew larger and faster. Fuchsia bloomed three weeks ahead of the control and snapdragons eight weeks earlier.

Although the initial appeal is to individuals wanting a private house without the trouble and expense of maintaining a heating plant, the advantages of the new design may cause it to displace the conventional greenhouse in the commercial field.

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• ADAPTATION of a 3,000-watt, boiler-type sterilizer to provide steam for pasteurizing milk in addition to the usual requirements for washing and sterilizing utensils and equipment has been successfully accomplished on a dairy farm at Hammond, Ore., on the lines of the Pacific Power & Light Co.

Goodwill Building + + +

"With public sentiment nothing can fail; without it nothing can succeed; consequently he who moulds public sentiment goes deeper than he who enacts statutes or pronounces decisions."—Lincoln.

Fundamental Aspects Of Goodwill Building

32 In discussions of public relations emphasis is generally placed on methods of coping with various details and the study and application of fundamentals is often overlooked. In most lines of endeavor if the fundamental truths are known, it is comparatively easy to fit them to individual problems as they present themselves.

Public relations is nothing more nor less than the attitude of the customer. Like the art of medicine, it falls naturally into two divisions, one remedial, the other preventive. The problem then is to repair damaged relations and to continue good relations by preventing injury to them. To do this a program needs to be developed which will fit into the everyday work of every employee from the lowest to the highest. Sporadic efforts and high power campaigns are not enough. They generally come after the damage is done.

Every employee should be a liason officer between the customer and the corporation, endeavoring always to get for the customer the greatest possible service for his money. Rules are tools for employees to use in working out customers' problems.

Before a method of treatment can be decided upon, a thorough diagnosis of the trouble must be made. No one knows definitely what the public's attitude is nor why it is so, because no disinterested agency has made a study of both phases.

The recent survey by *Fortune* gives a clue to the first phase, and it is not encouraging. Surveys ordinarily made by the utilities themselves are of small value because the average person in authority dislikes to hear bad news, and the rank and file, knowing this, color their reports accordingly. The A. T. and T. Co. a number of years ago, and the Union Pacific R. R. as reported in *Collier's* recently, and many others, have proved the value of the independent survey.

While such a survey is in the making, some of the obvious factors relating to public relations may be looked into.

Merchandisers of articles of general consumption have long recognized the fact that good customer relations depend on low cost—good service—pleasant personal contacts.

Costs, like values, are relative and depend on a number of factors. These factors, however, are not always self evident to the customer, and means for bringing them to his attention in an understandable manner must be provided.

Good service, as it is generally understood—an operating and engineering function—probably comes closer to customer satisfaction than any other branch of the business. It is doubtful, however, if enough use is made of available engineering technique to give the customer the assistance in solving his problems which is possible.

Probably of greatest importance is personal contact. Here is where appears a deplorable lack of understanding of human nature. Emphasis is placed on quantity instead of quality, as though such work was a piece work or peddling job. As a result, a sufficient personnel is not available.

Personal contacts can be divided into two categories — those in connection with routine work and those which have some special end in view. In both, however, courtesy as distinguished from mere civility should be stressed more. The customer should be treated as a guest; or as he collectively is, the real boss of the utility, for on him the very existence of the business depends.

The establishment of an imaginary competitor in the mind of every employee from top to bottom, by means of a paraphrase of the Golden Rule, "Do unto the customer as you would if a competitor was waiting to see him when you are through," would be an excellent start.

It is natural to mistrust that which is misunderstood. There is the job for the specialists: to make not only the mechanics of our service understandable, but the whole business as well, not by trying to educate the customer—people resent that—but by making them better informed. Too often such work has been ruined by making it a basis for sales effort or politics.

If the best interests of the customer are made the basis for all efforts, the future of the industry is secure, and will take care of itself.—*C.H.E.*

Rules

TO intensify interest in the problem of building customer goodwill ELECTRICAL WEST will pay $2.50 for each idea or suggestion deemed worthy of publication. In addition all suggestions received during the period from November 1, 1935 to October 1, 1936, will be eligible for $50 in awards to be given by ELECTRICAL WEST, the P.C.E.A. and the Northwest Electric Light & Power Assn. These awards will be based upon the goodwill building merit of the idea, its practicability, adaptability and originality. The judges will be officers of the two associations and the editors. The awards will be $25, $15 and $10 for the three suggestions ranked first, second and third by the judges. In the case of ties duplicate awards will be made.

Suggestions should be limited to 400 words, preferably less. Composition does not matter as manuscripts will be edited for publication by the editors. Ideas will be published over a nom de plume, provided the author indicates that such is his or her wish. They should be sent to the editor.

Open Local Plants To Weekend Visitors

33 It is suggested that the utilities arrange for personally conducted Saturday (or Sunday) visits to their neighborhood power plants and substations. A start could be made by inviting the boys of high school age (and the girls too), so that they may become acquainted with some of the operating routine of these plants. Those boys who want to become engineers—and what boy doesn't—will be sure to take advantage of these visits.

These young people will return to their homes filled with enthusiasm about the power company's hospitality, and this goodwill will in many cases be passed on to the parents and friends.

The men and women in charge of these tours should be selected not only because of their ability to explain detail in an interesting manner, but also because of their pleasing personalities.

Also, it might be possible to interest young people in the formation of life-saving groups, to be taught by the utility first-aid men, this instruction to include correct methods of resuscitation, use of pulmotor, etc. There will no doubt be occasional opportunity to apply these lessons at summer resorts where swimming is indulged in, and if one of these young people can save a life, he will be sure to state where he learned to do this. Saving lives will build goodwill.—*C.A.G.*

With the Trade Associations + + +

[An Exchange of Plans and Ideas for Assisting the Industry in All Branches to Solve Some of Its Problems of Trade Relations and Business Ethics]

NECA Committee Plans Campaigns

Successful all-industry cooperation reflected in growth of membership; full recognition of the West; groundwork for a vigorous, cooperative, business-building program—these were highlights of this summer's Executive Committee Meeting of the National Electrical Contractors Assn. at Mackinac Island, Mich. So reports Lloyd Flatland, executive committeeman, Pacific Division, San Francisco.

"Of interest to the West," said Mr. Flatland, "are the bylaws setting up new divisions. California, Nevada and Arizona are to be known as Division No. 9, Oregon, Idaho and Utah as Division No. 10. The change was made to balance membership within the two divisions and to allow better representation at the national convention."

Pledge Upheld

A poll of the membership tallied 60 to 1 in favor of the pledge of cooperation. Action resulting from the poll requires both new and old members to uphold the pledge.

"Several national cooperative programs have been undertaken by the industry promotion committee," said Mr. Flatland. "These include the Better Sight—Better Light campaign, kitchen modernization campaign and a new program which is to be known as the adequate wiring campaign. Members of coordinating committees have already received manuals of procedure."

Mr. Flatland called attention to the growth in membership throughout the West as reported to the executive committee by Earl Peak, national president. Mr. Peak told of conditions as he found them throughout the West on his recent trip.

"A fine job was done by Bob Ried, executive committeeman in the Salt Lake district," Mr. Flatland said. "Following President Peak's visit there, Mr. Ried brought in 35 new members. Seattle and Portland are increasing their memberships daily, northern California is successfully holding its already large representation, while southern California is steadily forging ahead."

Robinson-Patman Act

"Discussion of the Robinson-Patman Act was brief, it being felt that more time and better interpretations will be needed before we can fully understand our responsibilities under it. Information will be forwarded by the national association as soon as possible.

"Important, however, is the fact that the Voluntary Code will work under this act. The possibilities offered in the Voluntary Code agreement are great. To me it appears to be a sound working plan. It leaves members free to conduct their business in their own way, yet brings about fairer competition. To those who wish to send representatives to the Atlanta convention, Oct. 12, 13 and 14, this method of operating strikes me as being absolutely legitimate and one that will put money in local treasuries."

N.E.C.A. News will appear once more. It will be given a three-months trial distribution by the national association, which urges contribution of news and ideas to Larry Davis.

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Inspectors Plan Section Meeting

A new chapter of the International Assn. of Electrical Inspectors, the North California chapter, will come into being Sept. 21, when the Southwestern Section of the association will gather at Hotel Fresno for its thirteenth annual meeting. Sessions will continue through Sept. 23.

Presentation of the charter will be made by Ralph W. Wiley, national president, and chief of the San Francisco department of electricity. His address will be given at a joint luncheon meeting with members of the electrical industry of Fresno, the first day of the convention, and will follow presentation of a paper entitled "By Special Permission of the Authority Enforcing the Code," by W. J. Tretheway, city electrician of Huntington Park.

Code revisions will attract attention at the morning session Sept. 22. Victor H. Tousley, national secretary-treasurer, will discuss "Proposed Rearrangement of the National Electrical Code."

C. T. Coyle, section president, will preside at the meetings. Closing sessions, Sept. 23, will include discussion of inspectors problems, public education in the safe use of electricity, state laws, and other subjects of broad interest.

Inspectors in the territory comprising the Northwest Section will hold their convention at Olympia, Wash., Sept. 14-16. The program for this meeting was announced in the last issue.

14 Motor Shops Join In Los Angeles Bid

Unique in cooperative effort is the joint bid submitted to the Bureau of Power & Light by fourteen Los Angeles motor shops for work in connection with the frequency change from 50 to 60 cycles. The bid was awarded to the fourteen companies. The enormous volume of work, being undertaken by the Bureau without charge to consumers, will require the facilities of all qualified motor shops in the city.

Only two contracting firms failed to join in the joint plan and each of these have been assigned separate districts. The same applies to the service organizations of G-E and Westinghouse.

"In the normal bidding procedure," said J. O. Case, president of the Southern California Motor Specialists Assn., "the low bidder would probably be awarded the contract, but his facilities would be entirely inadequate to handle the work, thus leaving the balance of it subject to the keen competition of the less fortunate motor shops of the city.

"Realizing that this procedure could not properly serve the needs of the Bureau, and that it would only lead to the demoralization of the motor shop industry in Los Angeles, the association not only rendered valuable assistance to the Bureau in the preparation of specifications, so that intelligent bids could be made, but also interested fourteen of the major shops in making the joint bid on all work incident to the cut-over."

To simplify administration of the work, a coordinator will supervise facilities and man power of all shops. Prices are based on careful analysis of the work to be done and include assurance of fair profit, which the Bureau is quite willing to pay.

"This new era of real cooperation," said Mr. Case, "instead of the lip-service to cooperation with which we are all so fed up, is most encouraging and indicates that at last the industry is well on the way to real progress."

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• Evidence of cooperation within the electrical industry in southern California is the fact that the Los Angeles Department of Building and Safety assigned to the industry the task of rewriting the city electrical ordinance. All branches of the trade are participating in the job, which is well under way.

EDITORIAL + + +

What Industry Means to America

EVENTS of the last five years have shaken popular confidence in many American institutions. Not the least of these is the structure of American industry. Popular doubt, fed by radical thinking and utterances dictated by political expediency, is expressed in such questions as "What is wrong with industry, that such depressions can happen?" And the politician has answered, "America is at the crossroads," or "We are living in a great transitional period," and has promised economic and social changes, has criticized industrial leadership. These politicians would shift the responsibility for the depression onto the shoulders of industry, would make industry pay the full cost of relief through special taxation and would legislate regulations and restrictions detrimental to industrial progress.

In this blind condemnation of industry in general the electric light and power industry occupies a peculiar position. Not only has it been singled out for individual attack, but its contribution to the industrialization of America in making possible labor-saving and labor-serving machines has been pointed out as contributing to unemployment. Thus doubly stigmatized, it faces a doubly greater task than does industry in general in dispelling public doubt and in answering public and political accusations.

The American people seem bound to exact from industry a better social and industrial balance. And if industry is not to be irreparably damaged, it must shoulder the task of informing the public what industry has meant to America so far, and what may be expected in the years to come. An intelligent and informed public opinion must be created.

Accomplishment of this task will depend upon a mixture of fact and sentiment. Under the heading of facts a McGraw-Hill contemporary, *Factory*, has assembled a dramatic array of figures and arguments under the title, "What Industry Means to America." Here the case for industry is stated calmly and cooly; here is a reflection of the true relationship of industry to national life; here is proof that the progress of America depends upon the progress of its industries.

Briefly here are some examples drawn from the wealth of material assembled: Factory workers have at their elbows four times the power they had 50 years ago. While the power used by industry has been increasing twelve and a half times, jobs have increased three and a half times, wages, twelve and a half times. Sixteen new industries developed during the last 50 years (including the electrical industry) have created directly more than a million new jobs. Between 1923 and 1929 the manufacturing industries paid out in wages and salaries five times as much as in dividends and 20 times as much as it held for surpluses. In 1935 if executives' salaries were equally divided among factory employees, each employee would get 79 cents more a week. In bad times industry pays out of surplus; from 1930 to 1934 the manufacturing industries paid out $8,800,000,000 more than they took in.

These are but sketchy summaries from scores of pages of material that can be used in selling American industry to the American people. But there must be in addition to such factual data, information that will influence public emotion as well. Here is but one sample taken from *Factory:*

"American industry was created by the American people. In return, industry has created for the American people the highest standard of living in history.

"Industry is now so large a part of the national life that most of the people of America depend upon it—even the people on the farm. That is because industry and its workers buy so big a share of the products of agriculture.

"Without industry we should all have little more than the things man can make with his own two hands. Without industry we should all be engaged in the age-old, sun-to-sun struggle for food, clothing, shelter, and fuel.

"Industry's products mark the difference between bare subsistence and the ever higher standard of living that has been the heritage of succeeding generations of Americans.

"Industry has brought to the realm of fact the seven-league boots and the magic carpet that once existed only in the domain of fantasy. To the many it has made available the better things in life that once could be enjoyed only by the few.

"These accomplishments of industry have been conjured into being with no wave of the sorcerer's wand. Born of no black magic are the automobiles, the radios, the airplanes of 1936. Rather are they the results of hard work, invention, research, and the necessity to serve. They all hark back to the will of the American people to progress as no other peoples ever have progressed.

"Upon that will to progress was built the success of American industry in the years that are past. Upon the same firm foundation will rest the success of American industry in the years that are to come.

"The structure that industry will raise upon this foundation is an always higher standard of living. Industry's marvels of tomorrow will change to commonplace the marvels of today.

"America's capacity to produce is still too small. Her factories are not able to make as much as her people could use.

"Real progress is still ahead of us. The limits of American capacity to consume are marked only by the capacity of her industries to produce—to produce more of the good things that go to make a more abundant life—to produce them at the lowest possible cost so that the greatest number of people can buy them, use them and enjoy them.

"The history of American industry calls for always greater progress. Today, by means of its industries, America can give full measure of the task of perfecting the things it has and of creating the things that are to be. It need no longer dissipate its energies in conquering new wildernesses.

"Truly, by means of their industries, Americans can live in an economy of plenty. There need be no limit to the standard of living to which this nation may aspire. Always America can rise in new freshness to heights never dreamed of before."

The electrical industry's stake in the industrial future of America is as great or greater than that of any other business. Only as it succeeds in creating favorable public opinion and public recognition of its contributions to the industrial welfare of the people will it claim and collect its reward. It should do its share in taking to the people the story which *Factory* has assembled for all industry.

10 Cents Is a Small Price

NO SINGLE lighting development in recent years has done more to stimulate the latent market possibilities of the domestic field than has the I.E.S. lamp. Celebrating its second birthday with a campaign to sell 1,000,000 of these lamps in October, the I.E.S. lamp is bringing better lighting facilities into more homes and is arousing a greater public consciousness of the advantages of good lighting than any other lighting promotion developed by the industry.

Efficient quality merchandise, bearing a certification in which the public has confidence is largely responsible for the tremendous acceptance created for these lamps. For some utility companies, in their zeal to secure campaign "price" lamps, to overlook the value of the I.E.S. tag is to destroy the effectiveness of an outstanding national cooperative drive. The entire campaign has been largely financed by the 10-cent charge made for the I.E.S. tag, which the manufacturers pay and then pass on to the utilities. The advertising paid for by this revenue has built load and has sold lamps and lighting of all types. The tag has had a public relations building value as well. For some utilities to ignore these benefits is to put the whole campaign in jeopardy and to nullify the contribution of those other utilities which are bearing their share of the cost. After all 10 cents is a small price to pay for the advantages which go with the I.E.S. tag.

Knock, Knock

A PHENOMENON of the 1930's is the employment of organized methods for spreading misinformation. No person, company or cause is immune from subversive attacks of gossip. Cigarettes, breakfast foods, political figures, all have been subjected to malicious campaigns to destroy reputations. Nor is the electrical industry free from those who hope to gain from the destruction of the other fellow's business and who will stoop to nourish the circulation of outright falsehoods to this end.

The success of this most unfair of competitive methods relies upon the human penchant to gossip, upon the antisocial trait which seemingly makes knocking more popular than boosting as a subject for idle conversation, and upon common tendency to exaggerate. Even simple statements of minor trouble often are compounded by exaggeration until they reach preposterous proportions.

A number of pernicious rumors have been bandied about the electrical industry in recent months—all directed against different companies or products. Aside from the ethics involved, self-preservation should motivate every member of the industry to suppress these juicy morsels of falsity and innuendo, for no industry can prosper unless it is sound from within.

Fortunately only a few intentionally spread destructive propaganda. That it does spread is due to thoughtlessness on the part of others. The remedy is obvious: Think before indulging in idle canard.

What the Customer Buys

IT IS natural that the manufacturer of a device should be really impressed with its mechanical features and the details of construction that have been so painstakingly worked into the product. That was his major problem during its production. Likewise it is natural enough, though perhaps mistakenly so, to place the entire burden of sales plan for that device on such construction features in presenting it to the dealer to sell. In this same chain of thinking it is only to be expected that the dealer on his part will likewise be overcome by the mechanics of the device and seek to sell it solely upon his own enthusiasm for these details.

Yet what the ultimate user of an appliance or device buys is something to add to his convenience, his comfort, his safety, his pride, his pleasure, his efficiency. The appliance is but a means to such ends. Unless the salesman or dealer interprets those features of his appliance into the customer's own convenience and necessity, often he loses the sale. Some customers do their own interpreting—visualize for themselves how they can use it to add to their ease of living. But many lack the imagination to do so. Still more neglect to use the appliance they have purchased to its full capacity to do them service because no one ever told them its possibilities.

It is to stimulate salesmen and dealers in appliances into thinking and selling in terms of their customers and of their customers' needs that ELECTRICAL WEST again presents a complete Appliance Sales Guide covering all appliances and wiring as well. By its use dealers and salesmen will improve their percentage of closed sales to prospects talked to, and earn for themselves the extra profits and commissions to which their bringing of so much better living to the public entitles them.

Goodwill Building + + +

"With public sentiment nothing can fail; without it nothing can succeed; consequently he who moulds public sentiment goes deeper than he who enacts statutes or pronounces decisions."—Lincoln.

Fundamental Aspects Of Goodwill Building

32 In discussions of public relations emphasis is generally placed on methods of coping with various details and the study and application of fundamentals is often overlooked. In most lines of endeavor if the fundamental truths are known, it is comparatively easy to fit them to individual problems as they present themselves.

Public relations is nothing more nor less than the attitude of the customer. Like the art of medicine, it falls naturally into two divisions, one remedial, the other preventive. The problem then is to repair damaged relations and to continue good relations by preventing injury to them. To do this a program needs to be developed which will fit into the everyday work of every employee from the lowest to the highest. Sporadic efforts and high power campaigns are not enough. They generally come after the damage is done.

Every employee should be a liason officer between the customer and the corporation, endeavoring always to get for the customer the greatest possible service for his money. Rules are tools for employees to use in working out customers' problems.

Before a method of treatment can be decided upon, a thorough diagnosis of the trouble must be made. No one knows definitely what the public's attitude is nor why it is so, because no disinterested agency has made a study of both phases.

The recent survey by *Fortune* gives a clue to the first phase, and it is not encouraging. Surveys ordinarily made by the utilities themselves are of small value because the average person in authority dislikes to hear bad news, and the rank and file, knowing this, color their reports accordingly. The A. T. and T. Co. a number of years ago, and the Union Pacific R. R. as reported in *Collier's* recently, and many others, have proved the value of the independent survey.

While such a survey is in the making, some of the obvious factors relating to public relations may be looked into.

Merchandisers of articles of general consumption have long recognized the fact that good customer relations depend on low cost—good service—pleasant personal contacts.

Costs, like values, are relative and depend on a number of factors. These factors, however, are not always self evident to the customer, and means for bringing them to his attention in an understandable manner must be provided.

Good service, as it is generally understood—an operating and engineering function—probably comes closer to customer satisfaction than any other branch of the business. It is doubtful, however, if enough use is made of available engineering technique to give the customer the assistance in solving his problems which is possible.

Probably of greatest importance is personal contact. Here is where appears a deplorable lack of understanding of human nature. Emphasis is placed on quantity instead of quality, as though such work was a piece work or peddling job. As a result, a sufficient personnel is not available.

Personal contacts can be divided into two categories — those in connection with routine work and those which have some special end in view. In both, however, courtesy as distinguished from mere civility should be stressed more. The customer should be treated as a guest; or as he collectively is, the real boss of the utility, for on him the very existence of the business depends.

The establishment of an imaginary competitor in the mind of every employee from top to bottom, by means of a paraphrase of the Golden Rule, "Do unto the customer as you would if a competitor was waiting to see him when you are through," would be an excellent start.

It is natural to mistrust that which is misunderstood. There is the job for the specialists: to make not only the mechanics of our service understandable, but the whole business as well, not by trying to educate the customer—people resent that—but by making them better informed. Too often such work has been ruined by making it a basis for sales effort or politics.

If the best interests of the customer are made the basis for all efforts, the future of the industry is secure, and will take care of itself.—*C.H.E.*

Rules

TO intensify interest in the problem of building customer goodwill ELECTRICAL WEST will pay $2.50 for each idea or suggestion deemed worthy of publication. In addition all suggestions received during the period from November 1, 1935 to October 1, 1936, will be eligible for $50 in awards to be given by ELECTRICAL WEST, the P.C.E.A. and the Northwest Electric Light & Power Assn. These awards will be based upon the goodwill building merit of the idea, its practicability, adaptability and originality. The judges will be officers of the two associations and the editors. The awards will be $25, $15 and $10 for the three suggestions ranked first, second and third by the judges. In the case of ties duplicate awards will be made.

Suggestions should be limited to 400 words, preferably less. Composition does not matter as manuscripts will be edited for publication by the editors. Ideas will be published over a nom de plume, provided the author indicates that such is his or her wish. They should be sent to the editor.

Open Local Plants To Weekend Visitors

33 It is suggested that the utilities arrange for personally conducted Saturday (or Sunday) visits to their neighborhood power plants and substations. A start could be made by inviting the boys of high school age (and the girls too), so that they may become acquainted with some of the operating routine of these plants. Those boys who want to become engineers—and what boy doesn't—will be sure to take advantage of these visits.

These young people will return to their homes filled with enthusiasm about the power company's hospitality, and this goodwill will in many cases be passed on to the parents and friends.

The men and women in charge of these tours should be selected not only because of their ability to explain detail in an interesting manner, but also because of their pleasing personalities.

Also, it might be possible to interest young people in the formation of life-saving groups, to be taught by the utility first-aid men, this instruction to include correct methods of resuscitation, use of pulmotor, etc. There will no doubt be occasional opportunity to apply these lessons at summer resorts where swimming is indulged in, and if one of these young people can save a life, he will be sure to state where he learned to do this. Saving lives will build goodwill.—*C.A.G.*

With the Trade Associations + + +

[An Exchange of Plans and Ideas for Assisting the Industry in All Branches to Solve Some of Its Problems of Trade Relations and Business Ethics]

NECA Committee Plans Campaigns

Successful all-industry cooperation reflected in growth of membership; full recognition of the West; groundwork for a vigorous, cooperative, business-building program—these were highlights of this summer's Executive Committee Meeting of the National Electrical Contractors Assn. at Mackinac Island, Mich. So reports Lloyd Flatland, executive committeeman, Pacific Division, San Francisco.

"Of interest to the West," said Mr. Flatland, "are the bylaws setting up new divisions. California, Nevada and Arizona are to be known as Division No. 9, Oregon, Idaho and Utah as Division No. 10. The change was made to balance membership within the two divisions and to allow better representation at the national convention."

Pledge Upheld

A poll of the membership tallied 60 to 1 in favor of the pledge of cooperation. Action resulting from the poll requires both new and old members to uphold the pledge.

"Several national cooperative programs have been undertaken by the industry promotion committee," said Mr. Flatland. "These include the Better Sight—Better Light campaign, kitchen modernization campaign and a new program which is to be known as the adequate wiring campaign. Members of coordinating committees have already received manuals of procedure."

Mr. Flatland called attention to the growth in membership throughout the West as reported to the executive committee by Earl Peak, national president. Mr. Peak told of conditions as he found them throughout the West on his recent trip.

"A fine job was done by Bob Ried, executive committeeman in the Salt Lake district," Mr. Flatland said. "Following President Peak's visit there, Mr. Ried brought in 35 new members. Seattle and Portland are increasing their memberships daily, northern California is successfully holding its already large representation, while southern California is steadily forging ahead."

Robinson-Patman Act

"Discussion of the Robinson-Patman Act was brief, it being felt that more time and better interpretations will be needed before we can fully understand our responsibilities under it. Information will be forwarded by the national association as soon as possible.

"Important, however, is the fact that the Voluntary Code will work under this act. The possibilities offered in the Voluntary Code agreement are great. To me it appears to be a sound working plan. It leaves members free to conduct their business in their own way, yet brings about fairer competition. To those who wish to send representatives to the Atlanta convention, Oct. 12, 13 and 14, this method of operating strikes me as being absolutely legitimate and one that will put money in local treasuries."

N.E.C.A. News will appear once more. It will be given a three-months trial distribution by the national association, which urges contribution of news and ideas to Larry Davis.

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Inspectors Plan Section Meeting

A new chapter of the International Assn. of Electrical Inspectors, the North California chapter, will come into being Sept. 21, when the Southwestern Section of the association will gather at Hotel Fresno for its thirteenth annual meeting. Sessions will continue through Sept. 23.

Presentation of the charter will be made by Ralph W. Wiley, national president, and chief of the San Francisco department of electricity. His address will be given at a joint luncheon meeting with members of the electrical industry of Fresno, the first day of the convention, and will follow presentation of a paper entitled "By Special Permission of the Authority Enforcing the Code," by W. J. Tretheway, city electrician of Huntington Park.

Code revisions will attract attention at the morning session Sept. 22. Victor H. Tousley, national secretary-treasurer, will discuss "Proposed Rearrangement of the National Electrical Code."

C. T. Coyle, section president, will preside at the meetings. Closing sessions, Sept. 23, will include discussion of inspectors problems, public education in the safe use of electricity, state laws, and other subjects of broad interest.

Inspectors in the territory comprising the Northwest Section will hold their convention at Olympia, Wash., Sept. 14-16. The program for this meeting was announced in the last issue.

14 Motor Shops Join In Los Angeles Bid

Unique in cooperative effort is the joint bid submitted to the Bureau of Power & Light by fourteen Los Angeles motor shops for work in connection with the frequency change from 50 to 60 cycles. The bid was awarded to the fourteen companies. The enormous volume of work, being undertaken by the Bureau without charge to consumers, will require the facilities of all qualified motor shops in the city.

Only two contracting firms failed to join in the joint plan and each of these have been assigned separate districts. The same applies to the service organizations of G-E and Westinghouse.

"In the normal bidding procedure," said J. O. Case, president of the Southern California Motor Specialists Assn., "the low bidder would probably be awarded the contract, but his facilities would be entirely inadequate to handle the work, thus leaving the balance of it subject to the keen competition of the less fortunate motor shops of the city.

"Realizing that this procedure could not properly serve the needs of the Bureau, and that it would only lead to the demoralization of the motor shop industry in Los Angeles, the association not only rendered valuable assistance to the Bureau in the preparation of specifications, so that intelligent bids could be made, but also interested fourteen of the major shops in making the joint bid on all work incident to the cut-over."

To simplify administration of the work, a coordinator will supervise facilities and man power of all shops. Prices are based on careful analysis of the work to be done and include assurance of fair profit, which the Bureau is quite willing to pay.

"This new era of real cooperation," said Mr. Case, "instead of the lip-service to cooperation with which we are all so fed up, is most encouraging and indicates that at last the industry is well on the way to real progress."

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• Evidence of cooperation within the electrical industry in southern California is the fact that the Los Angeles Department of Building and Safety assigned to the industry the task of rewriting the city electrical ordinance. All branches of the trade are participating in the job, which is well under way.

EDITORIAL + + +

What Industry Means to America

EVENTS of the last five years have shaken popular confidence in many American institutions. Not the least of these is the structure of American industry. Popular doubt, fed by radical thinking and utterances dictated by political expediency, is expressed in such questions as "What is wrong with industry, that such depressions can happen?" And the politician has answered, "America is at the crossroads," or "We are living in a great transitional period," and has promised economic and social changes, has criticized industrial leadership. These politicians would shift the responsibility for the depression onto the shoulders of industry, would make industry pay the full cost of relief through special taxation and would legislate regulations and restrictions detrimental to industrial progress.

In this blind condemnation of industry in general the electric light and power industry occupies a peculiar position. Not only has it been singled out for individual attack, but its contribution to the industrialization of America in making possible labor-saving and labor-serving machines has been pointed out as contributing to unemployment. Thus doubly stigmatized, it faces a doubly greater task than does industry in general in dispelling public doubt and in answering public and political accusations.

The American people seem bound to exact from industry a better social and industrial balance. And if industry is not to be irreparably damaged, it must shoulder the task of informing the public what industry has meant to America so far, and what may be expected in the years to come. An intelligent and informed public opinion must be created.

Accomplishment of this task will depend upon a mixture of fact and sentiment. Under the heading of facts a McGraw-Hill contemporary, *Factory*, has assembled a dramatic array of figures and arguments under the title, "What Industry Means to America." Here the case for industry is stated calmly and cooly; here is a reflection of the true relationship of industry to national life; here is proof that the progress of America depends upon the progress of its industries.

Briefly here are some examples drawn from the wealth of material assembled: Factory workers have at their elbows four times the power they had 50 years ago. While the power used by industry has been increasing twelve and a half times, jobs have increased three and a half times, wages, twelve and a half times. Sixteen new industries developed during the last 50 years (including the electrical industry) have created directly more than a million new jobs. Between 1923 and 1929 the manufacturing industries paid out in wages and salaries five times as much as in dividends and 20 times as much as it held for surpluses. In 1935 if executives' salaries were equally divided among factory employees, each employee would get 79 cents more a week. In bad times industry pays out of surplus; from 1930 to 1934 the manufacturing industries paid out $8,800,000,000 more than they took in.

These are but sketchy summaries from scores of pages of material that can be used in selling American industry to the American people. But there must be in addition to such factual data, information that will influence public emotion as well. Here is but one sample taken from *Factory:*

"American industry was created by the American people. In return, industry has created for the American people the highest standard of living in history.

"Industry is now so large a part of the national life that most of the people of America depend upon it—even the people on the farm. That is because industry and its workers buy so big a share of the products of agriculture.

"Without industry we should all have little more than the things man can make with his own two hands. Without industry we should all be engaged in the age-old, sun-to-sun struggle for food, clothing, shelter, and fuel.

"Industry's products mark the difference between bare subsistence and the ever higher standard of living that has been the heritage of succeeding generations of Americans.

"Industry has brought to the realm of fact the seven-league boots and the magic carpet that once existed only in the domain of fantasy. To the many it has made available the better things in life that once could be enjoyed only by the few.

"These accomplishments of industry have been conjured into being with no wave of the sorcerer's wand. Born of no black magic are the automobiles, the radios, the airplanes of 1936. Rather are they the results of hard work, invention, research, and the necessity to serve. They all hark back to the will of the American people to progress as no other peoples ever have progressed.

"Upon that will to progress was built the success of American industry in the years that are past. Upon the same firm foundation will rest the success of American industry in the years that are to come.

"The structure that industry will raise upon this foundation is an always higher standard of living. Industry's marvels of tomorrow will change to commonplace the marvels of today.

"America's capacity to produce is still too small. Her factories are not able to make as much as her people could use.

"Real progress is still ahead of us. The limits of American capacity to consume are marked only by the capacity of her industries to produce—to produce more of the good things that go to make a more abundant life—to produce them at the lowest possible cost so that the greatest number of people can buy them, use them and enjoy them.

"The history of American industry calls for always greater progress. Today, by means of its industries, America can give full measure of the task of perfecting the things it has and of creating the things that are to be. It need no longer dissipate its energies in conquering new wildernesses.

"Truly, by means of their industries, Americans can live in an economy of plenty. There need be no limit to the standard of living to which this nation may aspire. Always America can rise in new freshness to heights never dreamed of before."

The electrical industry's stake in the industrial future of America is as great or greater than that of any other business. Only as it succeeds in creating favorable public opinion and public recognition of its contributions to the industrial welfare of the people will it claim and collect its reward. It should do its share in taking to the people the story which *Factory* has assembled for all industry.

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Electra Steals the Show

"LOOK HERE, this has gone on long enough," I said to my husband the other night. "I hear you have been quoting me in one of the magazines and I'm not sure I like it. If anybody's going to tell people what I think, I prefer to do it myself."

"All right, Electra," he answered meekly enough. "You go right ahead and talk. I'll turn off the electric fan."

"You'd better turn off the wise cracks," I told him. "I'm going to tell you a few things for your own good." And I did.

"As I see it," I told him, "what you and the rest of you people in the electrical industry are trying to do is to make people like myself and Mrs. Jones down the block and Mr. Havermill that sells groceries and Mr. Brown the street car conductor, all of us think that you are pretty fine fellows—that you are doing a good job and not charging too much for your product and that you are not trying to do anything sinister for us in the name of the power trust—"

"Surely you haven't been listening to those lies the socialists put out—" he interrupted.

"Being married to you, darling, I've learned to recognize a lie when I meet one," I soothed him. "Besides, I like the power company. I think I'd have a friendly feeling toward them, even if I didn't listen to you every night. But then, you see, that is because I use all sorts of electrical equipment myself in the kitchen and around the home. I have learned by practical experience to rely on electricity; I know how much work it saves me and that the bill which comes for it at the end of the month is reasonable. And because I really have occasion to call on the power company for help, I've learned that they give a willing service. Anyone who received the prompt attention which was given me the other day when my oven element went wrong just before a company dinner, couldn't help but feel grateful.

"But what does Mrs. Jones know about that? Probably she owns an electric iron, but I doubt if she has any other electric appliance. The only contact she has with the power company is the painful one of paying her bill. And at that, she pays more than I do, considering the amount she uses, because she doesn't get the advantage of the lower rates. Why don't you people stop trying to tell her how good and kind you are and start selling her a few appliances? She'd get the point a lot sooner."

"But you know the power company is leaving all the selling of appliances to the electrical dealers now," he explained.

"That's all right," I told him. "I don't care who sells them. But if you want her to stop worrying about the power trust, you'd better see that she buys them from somewhere. That's your job, as I see it, and if you really did it well you'd solve a large part of that public relations problem you worry so much about."

"But it's the dealers and manufacturer's problem, too," he objected. "The power company can't sell all the equipment. And even as it is now the rest of them are too willing to sit around and let the utility do all the pushing."

"Maybe you're right," I admitted. I believe in encouraging men once in a while, especially when I'm not sure what they are talking about. "At any rate, I don't think the dealers—or the manufacturers, either — believe very much in the equipment they are trying to sell. I happened to play bridge the other afternoon with the wife of one of the men who is way up in the electrical business — and did she do some grand slamming on the subject of electric ranges! What is more, she was way behind the times; she was talking about the electric range of ten years ago. Of course, I know that it is hard to blame a husband for his wife's prejudices, but just the same I decided he must be a pretty poor salesman. I don't believe he thought much of the electric range himself, even if he did say boasting things about it in his advertising. And none of you have sensed the possibilities yet that there are in the electric dishwasher! I have sold more dishwashers to people who have seen mine work than all the dealers in town. I can convince my friends, because I use one and I know it is good. I can tell perfectly well when a salesman really is enthusiastic about his product—and so can every other woman. There ought to be some sort of law about not letting a man sell anything that he does not believe in enough to use himself.

"Here's another thing," I went on. "While I'm on the subject of manufacturers, I'm pretty sick about discovering that the ones I've always trusted to put out good quality equipment have come out these last few years with all sorts of cheap models of everything. What are we housewives going to trust? Of course, I can tell an obviously shoddy product, like some of these do-funny electric toasters they bring in from Japan, but when the enamel and shiny metal look all right on the outside, I have only two ways of telling whether it is a good product or not. Either I go by the price, or I trust the manufacturer's name or that of the store I buy from. I feel that I ought to be able to trust both the manufacturer and the merchant I buy from. We always find out in the long run whether we've been treated right or not—and one betrayal can do a lot of damage.

"Speaking of damage, I know that chain stores are an unpopular subject. And of course I can understand why local dealers are so touchy whenever one is mentioned favorably. But just the same, I want to say from the standpoint of a housewife and a family buyer that I think sometimes they do a pretty good job of selling. I don't mean cheaper prices—I mean attractive advertising, good store display, intelligent treatment on the part of clerks and courteous salesmen that ring your front doorbell. I think it wouldn't do any harm for some of you people to quit being so sensitive about them and start to study some of their methods."

"You don't seem to like any of us very well. Perhaps," suggested my husband, "you think it would be better if the government took over the whole industry from power plant to appliance selling?"

"No," said I, "I don't. Goodness knows, I sit in fear and trembling whenever the legislature is in session wondering what it is going to do to me next. And congress these last few years has been even worse. I certainly don't want to put any more power to govern my life or to spend my money into the hands of people over whom I seem to have such a minority control. No, I'm all for the rights of the constitution and private ownership and the little man who tries to stand on his own feet, even though everybody else is trying to stand on them, too."

"Just whom do you mean by a little man?" asked my husband then.

"Why you, darling. Whom did you think?"

Cooperation on Parade + + +

[*Forecast of forthcoming cooperative merchandising activities, and review of activities in progress or completed, a summary of cooperation at work throughout the West*]

Electrical Progress Week Success in Portland

Forty-eight electrical dealers of Portland participated in an unique sales promotional program sponsored by the chamber of commerce under the heading of "Electrical Progress Week" during the period from Aug. 24 to 29. Conceived to bring the buying public into the dealer's store, the campaign did much to stimulate appliance sales.

Main feature was a treasure hunt. Forty-eight treasure chests were placed in the dealers' stores, each one containing a valuable electrical prize. Every customer who purchased an appliance of a dollar or more was given one of 70,000 keys distributed by the committee to all participating dealers. When the recipient of the key found the box which his key unlocked the treasure in the box was his.

The chamber of commerce sponsorship created a large volume of newspaper publicity in addition to the advertising which was run during the week. D. B. Chown, Chown Hardware Co., was chairman of the committee sponsoring the drive, other members being A. H. Herndobler, Edwards Furniture Co.; George Madison, Portland General Electric Co.; J. B. Buman, Northwestern Electric Co.; Bertrand Macomber, Meier & Frank; Edward J. Rapp, Lipman Wolfe & Co.; Charles Anderson, Alberta Furniture Co.; Glenn Edwards, S. J. McCormick Co.; A. L. Shellworth, Sunset Electric Co., together with representatives of the three Portland newspapers.

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P. G. & E. Launches Promotion For Adequate Lighting

To educate the public to the economy of operating lights of adequate wattage, and to accomplish this before winter, the Pacific Gas & Electric Co. has launched a program of visual advertising with which the General Electric Co. and 1,400 Mazda lamp dealers are cooperating.

Here are the low costs which it is desired to put across:

Lamp Wattage	Cost per Hour
60	5/32c
75	3/16c
100	¼c
150	3/8c
200	½c

To obtain explanatory clearness, posters are being used. Throughout the fall they will appear in P.G.&E. electric offices, and the same design on bill stickers. Last month, 60-watt lights were featured; this month it is 75-watt lights, and next month it will be the 100-watt size. Dealers will feature the same posters, emphasizing 100-watt sales through to December. P.G.&E. will follow with posters on the 150- and 200-watt sizes.

IT'S A FACT
THE PRICE OF A BOX OF MATCHES
WILL LIGHT A 75 WATT LAMP FOR 25 HOURS
LIGHT is inexpensive SIGHT is priceless
DO YOU KNOW?
THE COST OF A BAR OF SOAP WILL LIGHT A 100 WATT LAMP 32 HOURS
LIGHT is inexpensive SIGHT is priceless
WOULD YOU BELIEVE IT?
THE PRICE OF A PACKAGE OF SALT
TABLE SALT
WILL LIGHT A 150 WATT LAMP 25 HOURS
LIGHT is inexpensive SIGHT is priceless

These posters are being used by P.G.&E. to dramatize the low cost of adequate lighting by appealing to women, who do 80 per cent of lamp buying

●

Grocers to Aid in Appliance Promotion

With October designated as "Electric Buffet Service Month," a national promotion of electrical housewares has been worked out in which the Edison Electric Institute and twelve prominent electrical manufacturers will cooperate with the General Foods Corp. in tying together retail grocers and electrical dealers in promoting appliance sales. General Foods will announce the Electrical Buffet Service Month over the air on four radio programs. Electrical dealers, department stores and utility companies will include Maxwell House coffee and Log Cabin syrup in their window and interior displays of electrical housewares featuring buffet entertaining.

Utah P & L Extends Water Heater Offer

Because of the excellent results a cooperative electric water heater campaign scheduled by the Utah Power & Light Co. for 60 days was extended another 60 days to Sept. 15. Approximately 700 water heaters were sold during the first 6 months of 1936 in this company's territory. Feature of the water heater campaign was its simplicity as far as dealers are concerned. If dealers have a prospect for any electric water heater and lack knowledge or equipment for completing the sale the prospect's name can be registered on a water heater form and mailed to the nearest power company office. A trained salesman follows through and on completion of the sale a check for $7.50 is mailed to the dealer as his commission. Where dealers handle and close the sale themselves they receive the normal gross profit and the power company delivers and installs both the wiring and plumbing at a cost to the dealer of $5.

●

Edison Refrigerator Drive Doubles 1935 Sales

The nine weeks "Go Modern, Go Electric" dealer cooperative electric refrigerator sales campaign inaugurated by the Southern California Edison Co., May 14, broke all success records with approximately 12,000 units reported sold, an increase of more than 100 per cent over the same period last year.

As a rousing climax to the campaign activities some 300 refrigerator salesmen, the campaign top men throughout Edison territory, were guests of the company on a week-end cruise off the coast of Lower California aboard the steamship Ruth Alexander. The trip, by chartered steamer July 10, 11 and 12, was even bigger and better than the company's trip of last summer.

●

• A BANQUET of dealers, distributors, salesmen and their ladies marked the annual election of the Bureau of Radio and Electrical Appliances of San Diego County, Aug. 7, at the House of Hospitality auditorium in the San Diego exposition. Previously balloted by mail, the election committee was to announce results at that banquet. Special entertainment was to feature an electrical show by Kenneth Strickfaden, electrical magician, who has been entertaining in the Palace of Electricity.

First Hawaiian Lighting Institute Held by W. A. Ramsay, Ltd.

By LEO G. GIANINI
Illuminating Engineer, Incandescent Lamp Dept., General Electric Co.

IN ALL of the land over which the American flag flies one would hardly expect to find a more unlikely place in which to carry on a Science of Seeing program than the semi-tropical Isles of Hawaii in June. To one who doesn't really know the facts it appears the last spot where one would attempt to interest people in lighting—particularly artificial light, as a competitor to daylight. But not to the W. A. Ramsay Co., Ltd., engineering and electro-mechanical supply house of Honolulu.

In spite of the fact that outdoor daylight is practically always abundant in intensity of such actinic value that amateur photographers from the mainland constantly overexpose their pictures until they learn better; in spite of the fact that the commercial houses close at 4 in the afternoon and insist on no overtime, P. S. Pell, manager of W. A. Ramsay Co., knew the far more important facts that counterbalanced these outward appearances.

In the first place much substantial business and consequently indoor seeing work is carried on in the Hawaiian Islands. An indication of the volume of business transacted is the fact that the U.S. government receives from Hawaii yearly more in taxes than it does from any of fifteen states. Then although there is an abundance of daylight outdoors, indoors it falls off just as rapidly as it does anywhere else—probably more so because of certain differences in building construction.

Daylight generally variable in quantity is decidedly so in these islands—seldom dropping very low but within a fairly wide range very changeable. Finally in spite of mainland ideas to the contrary, there is much more reading and studying done at night in Hawaii than in many mainland places.

All of these facts furnished ample justification for the W. A. Ramsay Co., Ltd., undertaking Science of Seeing educational activities in the Hawaiian Islands. The very new and interest-arousing lighting research material brought by the writer on the occasion of his visit there to open the first Hawaiian Lighting Institute formed the basis for the promotional program.

After covering the walls of a large office with the accoustical wall board "Canec" made in Hawaii from baggasse, the byproduct of sugar cane, demonstration material covering all phases of modern illumination engineering practice was set up as partly shown by the accompanying photograph. It is unlikely that anywhere in the United States outside of Nela Park itself have more modern or spectacularly new lighting demonstrations been shown the public than were on display in the Ramsay Institute opening June 15. In the first place, permission to release some of the new light sources displayed was withheld until that date. In the second place, numerous manufacturers contributed most generously with samples of their latest equipment and material, and through the courtesy of the illumination division at Stanford University many of the laboratory displays were made available.

Finally as a result of some original research carried on in Honolulu illustrations of advanced office lighting practice were given. The following outline gives an idea of the breadth and magnitude of the displays.

Part of the Ramsay lighting display which demonstrated Science of Seeing to 1,000 people in Hawaii

LIGHT SOURCES

Incandescent: New 60-watt coil-recoil Mazda lamp, new 1,000-watt medium bi-post hard glass Mazda lamps, silvered bowl, Lumiline and standard Mazda types.

Luminescent: Sodium vapor, neon, helium, Cooper Hewitt mercury vapor, high-intensity mercury vapor and capillary mercury vapor lamps.

Fluorescent: New inside fluorescing coated low-wattage tubes.

Synthetic "White" Lights: Filtered Mazda types, Cooper Hewitt-Mazda combinations, high-intensity mercury vapor-Mazda combinations, capillary mercury vapor-Mazda combinations, blue fluorescent-Mazda combinations and "white" fluorescent type.

Graphical technical data on these groups were also presented.

Science of Seeing demonstrations included visual acuity, speed of vision and visibility charts; conventional and slat charts; lightmeter discussion; visibility meter investigations and projected lightmeter demonstrations.

Application engineering covered the following subjects: voltage and wiring demonstrations; light control and diffusion demonstrations; reflection factor measurements; transmission factor measurements; new General Electric Illumination handbook; new luminaires, industrial and commercial; and colored slides of outstanding lighting installations.

During the last half of June in excess of 400 adults in groups as well as singly were given discussions and demonstrations of various phases of modern illumination practice, generally lasting well over an hour. An idea of the wide coverage secured is shown by the fact that audiences covered the following classification groups: executives and operators of sugar and pineapple concerns; employees of electric public utilities and traction company; federal and municipal officials; Army and Navy officers; educators and university groups; sight conservation officials; architects and engineers and business and professional groups.

Portions of the displays were moved about and used in addressing other groups such as the Honolulu Art Society, service clubs, etc., at their regular meeting places so that the total number before whom demonstrations and discussions were made totaled close to 1,000 during the last weeks of June.

In addition the facilities afforded by the unusual collection of new sources and equipment were used to good advantage in solving some of the lighting problems peculiar to the pineapple canning and sugar cane industries. Finally the set-up permitted some original research work which may have a very important influence in the future of office and school room lighting practice.

Appliance Floor Planned in New Furniture Exchange

FALL Market weeks are a part of the standard equipment which comes with the furniture and housewares merchandising trade. Years ago they occurred only in New York and Chicago but now Los Angeles and San Francisco vie with each other to be first to invite the trade in to see new fall merchandise. The Los Angeles furniture market had the advantage of time with its market during the last week of July. But San Francisco's Market Week, from an electrical industry standpoint, was the more significant for two reasons. A far greater attention and space was devoted to the radio and appliance division. With the announcement of a 2½ million dollar new building came also word of an entire floor to be devoted to the radio and appliance manufacturers and distributors.

Buying started earlier and rose to higher volumes at the fall Market Week, Aug. 3-8, than in previous markets. With the addition of Graybar Electric Co. the radio and appliance division had a greater representation from distributors and manufacturers than on any previous occasion. The electrical distributors now represented at the Exchange include Allied Manufacturers, Ltd., Apex-Rotarex Manufacturing Co., H. R. Basford Co., Bushnell Sales Co., Chanslor & Lyon Stores, Inc., Dunham, Carrigan & Hayden Co., Easy Washing Machine Corp., Frigidaire Corp., General Electric Supply Corp., Graybar Electric Co., Albert Groeschel, Holland-Rieger, Inc., Leo J. Meyberg Co., Inc., Moore Electric Supply, Steiger & Kerr Stove & Foundry Co., Stromberg-Carlson Telephone Manufacturing Co., Thompson & Holmes, Ltd.

New Building

With the new building, an eight-story structure with 500,000 sq.ft. of floor space, to be located on Market and Tenth Sts., San Francisco, will come an entire floor devoted to the radio and appliance industry. Realizing the need for the utmost modernity in exhibiting facilities, the new building will have exceptional lighting, air conditioning, radio antenna systems and a completely adequate wiring installation. It is also planned that a large lunch room will be provided on the roof terrace which may be used for trade and club luncheons of the industry. Announcement of the new building was made by Harry J. Moore, president, and Frank K. Runyan, vice-president of the Western Furniture Exchange, on the opening day of the fall market.

The Program

Aside from the buying, which after all is the purpose of a Market Week, a program of educational features likewise gave the electrical industry a predominant part in the picture. The opening Monday luncheon was a joint affair between the visitors to the Exchange and the San Francisco Electrical Development League. James B. Black, president, Pacific Gas and Electric Co., presided. Dr. A. P. Haake, managing director, National Assn. of Furniture Manufacturers, as speaker, told why business should be better in home furnishings. Delayed buying, worn out or obsolete furniture, the reintegration of families, more marriages, the intensive construction of new homes, plus a better style consciousness and an improved taste on the part of the public all promise a season of exceptional buying. He urged selling of "a home," instead of a "what-not for $7.50."

Wednesday evening was devoted to a radio and appliance trade dinner presided over by L. B. Quimby, chairman, radio and appliance buyers' advisory board, with R. E. Fisher, vice-president, Pacific Gas and Electric Co., as toastmaster. Clyde Allen, General Electric Co., pinch hitting for Lucian L. Kahn, Estate Stove Co., gave the talk on electric ranges. He pointed out the growth of public desire for better ways of doing things, citing the vacuum cleaner versus the broom, the electric light versus coal oil lamps, and a washing machine versus the wash board, and told of the advantages which customers can buy in an electric range.

Carl D. Boyd, Pacific Coast manager, Stewart-Warner Corp., told of the obligation of manufacturers to dealers and to distributors, in the way of stock and service, and then told of dealer obligation as well. Among these he listed the obligation to make floor displays, to use the promotional material provided and to cooperate with tie-in advertising; also to train his personnel and to maintain a major appliance department and a good service department. Employee training, he said, was important. Even the service department should be kept sales minded with a sales sense that will bring business to the store. He pointed to the large market in radio and refrigeration replacement business and stressed the need for strong outside selling by properly supervised and well trained men. He paid tribute to the cooperative efforts of utilities in present-day selling programs. W. H. Tappan, vice-president, Tappan Stove Co., makers of gas ranges, was the next speaker. He advocated rotation of sales effort and made the significant statement that 40 per cent of the clock-controlled gas ranges are now sold on time payments. He urged "prospecting" users for new prospects and a study of the customer's needs rather than immediate talk on the product.

Personalities at the Market Week meetings: James Black presiding over the joint electrical and market luncheon; L. M. Quimby, chairman of the Radio and Appliance dinner; Clyde Allan (seated), who spoke for electric ranges; Carl Boyd, who talked of dealer responsibilities; (seated back of him is W. H. Tappan); R. E. Fisher, toastmaster for the dinner; Harry Polse, who talked such sound sense at the Tuesday evening Institute; and Chairman Nielson, in charge of that discussion session

At the joint luncheon between the San Francisco Advertising Club and the Exchange on Wednesday Douglas McPhee, business writer and former editor of Western Advertising, told of personal experiences while shopping for electric refrigerators. By this means he illustrated the weakness in the salesmanship of several types of salesmen, only one of whom inquired into his family's needs and directed his effort on the basis of what that family required. He advised dealers to interest themselves in families and not merchandise and pointed out how this attitude would change their business from one of "selling something," to one of acting as a "buying representative."

Architects' sketch of new San Francisco Furniture Exchange Building announced

Fresno Dealers Pry Up the Sales Curve

That sales slumps are not a matter of calendar days but lack of energy was proved conclusively in Fresno when the refrigerator dealers of that city decided to stage a Refrigeration Week, Aug. 3-8, right at the tail end of what normally has been considered to be the beginning of drop-off in refrigerator sales. As a result sales took a new upward turn and all dealers in that city were enthusiastic over their cooperative effort.

Each of the refrigerator dealers pledged to do additional advertising and to stay open evenings until 9 p.m. each night of that week. The cooperative division of the San Joaquin Light & Power Corp. provided a central advertisement and supplied posters for window displays to each of the dealers. Final figures on sales have not been compiled but several dealers declared they had sold several machines each evening of Refrigeration Week.

A previous campaign among dealers was staged on roasters. There were sold 220, according to the dealer reports received by the dealer cooperative department of the power company. Only about half of the dealers are reporting, but this indicates a widespread acceptance of the roasters. An interesting phase was that the most expensive types of roasters sold the best. There were more of the $24 roasters sold than the cheaper models, customers wanting all of the automatic features. Dealers have expressed desire to stage a similar campaign again next year.

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• TWENTY DEALERS AT SACRAMENTO, Calif., staged a unique promotion in connection with the electric refrigerator cooperative campaign sponsored by the Electric Appliance Society of Northern California recently. The dealers purchased tickets priced at $1 each which were given free to each person purchasing an electric refrigerator during the campaign. At the completion of the special drive a drawing was held and the winner was refunded the money paid on the refrigerator and the dealer paid the full retail price from the money collected. A total of $350 was collected. All dealers featured the prize in their advertising.

• ELECTRIC WATER HEATER SALES reached a new high mark as the result of a campaign recently concluded by the Southern California Edison Co. Also accomplished were substantial additions to the electric water heater load throughout the Southern and Central California territory. Water heater specialists are provided with working material for months to come. The sales efforts of men in the field were tied in with an advertising campaign consisting of three-piece broadside mailings over a period of six weeks. Each electric range user in Edison territory received the mailings. The company plans a follow-up campaign late this month.

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• HOT WATER "FAMINE" victims were offered relief by electrically heated water advertised in a current campaign of Seattle City Light. Thus was coined a new appeal for the sale of electric water heaters. Advertisements pointed out that Seattle residents had plenty of purest cold water for drinking and watering the lawn, but that thousands of families have been suffering from shortage of hot water for bath, dishes, laundry, shaving, etc.

DEALER SALES REPORT—JULY 1936

A Summary of Dealer Reports Compiled by Associations, Societies, Bureaus, or Dealer Contact Department of Utilities

APPLIANCE	P. G. & E. Co.[1]		San Diego Cons. G. & E. Co.[2]		San Joaquin Lt. & P. Corp.[3]		So. Calif. Edison Co., Ltd.[4]		Utah Power & Lt. Co.[5]		Wash. Water Power Co.[6]		Idaho Power Co.[7]	
	*July 1936	Year to date	‡June 1936	Year to date	July 1936	Year to date	July 1936	Year to date	July 1936	Year to date	‡June 1936	Year to date	July 1936	Year to date
Ranges	404	2,333	55	285	142	1,051	555	3,873	262	2,358	212	.....	295	2,907
Water Heaters	237	1,556	45	330	70	520	248	1,806	87	753	197	.....	211	1,709
Air Heaters—aux.	86	4,343	20	735	3	114	17	776	17	571	14	.....	5	176
Air Heaters, 220	45	475	.....	.....	32	383	.....	.....	.....	.....	.....	.....	.....	.....
Refrigerators	5,435	28,119	1,100	4,010	1,038	6,422	8,089	35,308	1,821	8,816	1,291	.....	891	4,797
Dishwashers	17	177	.....	.....	3	12	.....	.....	9	47	1	.....	3	20
Washers	2,999	20,443	475	1,980	454	3,083	3,332	20,609	1,086	7,381	631	.....	369	3,101
Ironers	745	6,253	70	435	80	612	641	4,193	47	363	51	.....	42	360
Vac. Cleaners	2,327	15,612	200	990	108	661	1,090	7,144	770	4,190	180	.....	125	780
Radios	8,173	55,225	850	5,475	487	4,035	4,652	31,416	1,066	8,050	854	.....	297	3,400
Mixers	849	7,219	125	895	42	500	455	2,786	325	2,943	163	.....	49	488
Cookers, Casseroles	.....	.....	70	290	125	213	88	510	28	125	743	.....	18	67
Irons	.....	.....	400	2,155	425	2,499	1,611	9,953	1,456	8,992	844	.....	453	2,543
Waffle Irons	.....	.....	150	1,065	99	762	431	3,009	483	3,135	163	.....	74	780
Toasters	.....	.....	175	1,110	95	913	603	3,987	736	4,451	528	.....	128	1,233
Table Stoves, etc.	.....	.....	35	260	86	991	279	1,928	2,066	7,646	183	.....	398	1,244
Heating Pads	.....	.....	35	745	8	205	74	1,213	79	1,068	52	.....	5	224
Curling Irons	.....	.....	.....	.....	.....	.....	43	336	540	2,365	.....	.....	.....	.....
Coffee Makers	.....	.....	225	1,300	92	702	388	2,495	486	2,984	561	.....	130	817
Sewing Machines	1,082	8,591	60	280	.....	.....	.....	.....	201	1,053	72	.....	13	105
Clocks	.....	.....	275	1,525	117	759	440	3,086	592	2,596	243	.....	22	261
Fans	.....	.....	.....	.....	897	1,970	2,273	3,623	1,683	3,924	595	.....	1,308	1,858
Floor Polishers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sun Lamps	.....	.....	.....	.....	.....	.....	28	350	2	66	.....	.....	2	41
Reflector Lamps	.....	.....	.....	.....	44	786	.....	.....	1,386	11,933	430	.....	133	3,654
Misc. Lamps	.....	.....	.....	.....	.....	.....	.....	.....	1,379	11,670	911	.....	234	1,963
Yard Lights	.....	.....	.....	.....	56	314	.....	.....	.....	.....	.....	.....	.....	.....
Misc. Small Appl.	.....	.....	.....	.....	261	1,768	714	5,084	.....	.....	.....	.....	.....	.....
Total Dealers	1,400	.....	.....	.....	.....	.....	541	541	.....	.....	.....	.....	.....	.....
No. Reporting	.....	.....	.....	.....	127	138†	503	521†	.....	.....	.....	.....	.....	.....

[1] P. G. and E. reports obtained only on major appliances upon which accurate reports are available from dealers' accounts. Ranges, water heaters, and air heaters include company and dealer sales. Total dealers include gas as well as electric dealers. * Previous month's figures shown under current month's heading.

[2] Gathered by Bureau of Radio and Electric Appliances of San Diego County. Estimated monthly sales figures used in this table. Clocks, fans included under miscellaneous.

[3] Includes dealer reports from Midland Counties Public Service Corp. territory also. Compiled by Valley Electrical Supply Co.

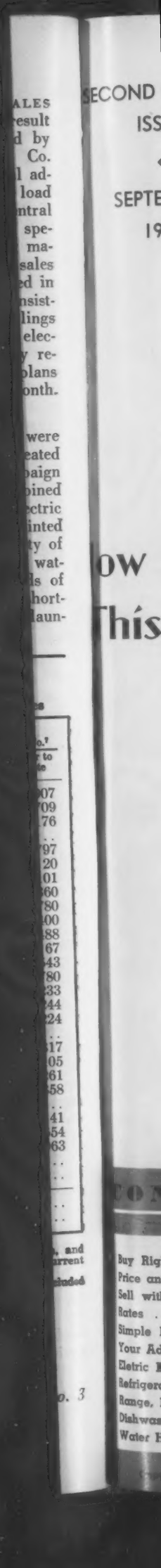
[4] Includes reports from dealers on San Joaquin Valley system of the company as well as Southern California areas served.

[5] Includes Utah Power & Light Co. territory in Utah, Idaho and Wyoming. Also Western Colorado Power Co. territory.

[6] Dealer sales only for Spokane and company's territory. Company sales not included. Table stoves, grills included with cookers.

[7] Figures compiled by Electrical Equipment Sales Association. Include power company sales and sales of all reporting dealers—about 60% report.

† Arithmetical average of number of dealers reporting. ‡July report not available at time of going to press.



SECOND ANNUAL ISSUE

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SEPTEMBER 1936

How to Use This Tool

A selling tool that saves your time as salesman or dealer, increases your percentage of sales to prospects, brings to you in one condensed package real selling ammunition you can cash in with for results, is decidedly worth your effort to read, to study and to use. In this Guide the editors have done for you what you have always felt should be done—they have read, sifted, tested, tried every bit of sales information manufacturers, advertising and sales specialists have placed in their hands. They have interviewed salesmen and sales-managers. The tremendous volume of sales help material you get from manufacturers they have digested and boiled down to save you confusion and weariness. What you find here are the basic, simple, usable principles to get you maximum sales results with minimum effort. Most every salesmen has had sales training. His problem is to keep what he has learned readily available for use every day on every sale. This guide is designed to bring back to you the vital selling principles you have learned so that you can employ them to produce more sales more easily. Remember;

1. The customer buys the services that the appliance will deliver to him.

2. Your appliance features and construction details are proof that it can deliver these services.

3. The manufacturer's prestige and name is further assurance of continued satisfaction from it.

4. The testimony of someone near by who is enjoying its use is very convincing that the prospect can get such service also.

5. Therefore it is worth much in excess of your price (whatever it may be) in terms of use and benefit.

6. Then ask for the order by inquiring if you can wrap it up or send it out.

The outline just given is the most effective sales formula ever developed. If it does not close the sale the first time, repeat it, but lay greater emphasis on the service or value to be derived by your prospect. To make this easy the material in this guide on every appliance has been arranged as a sample sales talk on that appliance. It tells, just as you should, first, what the use of that appliance will mean to the prospect. With very little change these same sales point and wordings can be used effectively in writing your ads, letters to prospects, on window display cards or in radio announcements. They are worded to create pictures of benefits to be derived from your appliances, pictures which will create desire and hasten the sale along. Also in this Guide you will find, *in italics*, hints and suggestions *to you* as to display or selling methods that will also bring you more results. The first four pages are devoted to suggestions to check yourself by in planning, buying, sales training, and excellent ideas on window and store display at little cost.

Use this tool and you will find it the best sales maker in your kit.

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Buy . . *for your class of Customers*

In a few simple words, a furniture dealer of Oakland, speaking at a merchandising institute, stated the fundamental idea in buying. "Frankly," he said, "my wife is not the kind of customer that I cater to. I do not buy merchandise to sell her, or to suit my own tastes, but which will sell to my class of customers." That sums up the first principle of successful merchandising — *Know your customers and their tastes.* The second principle is—*Buy for your class of trade.*

Study your customers . .

To *know* your customers, think over these questions: How often do you see and talk to your customers, to former customers? Are you making it easy for them to buy? Do you report your sales to the utility or league or association so as to be able to get figures on total sales, and so study your own percentage; how much business your competitors are doing? What are the boundaries of your effective territory; the volume to be expected from it? Who are your best prospects. Is your list up to date? On your orders last year, how many came from past customers? How many of the same customers do you have as last year; five years ago? How many new customers came because old customers recommended you? What types of income, standards of living, do your trade have? What do they need? What kind of luxuries do they buy?

Timeliness . .

After such an analysis, which will help you determine *what* to buy, study the seasonability of different lines. That will tell you *when* to buy. Look at the table at the right. Balance up your stock so that you will have a good steady volume throughout the year; refrigerators in summer, radio in winter, ranges and washers in spring and fall, lighting in the fall, etc.

Play Ball . .

If there is a cooperative selling campaign staged by a league, bureau or society or the utility, tie in with it. Don't let any prejudices or byegones blind you to the value of the sales experience of these organizations, or the value of getting into the parade when a big drive is on. More profits are to be made by playing ball, *by running with your sales pigskin behind the interference they provide* in advertising and promotion. Most of them are anxious to help you sell these days. It only costs you a little in *cooperation,* pays you in *sales volume.*

Durability . .

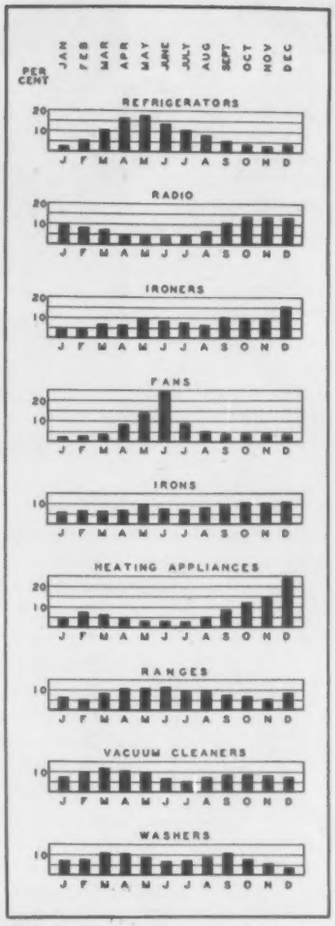
Too many dealers spend most of their energies getting rid of disappointing, obsolete or orphan lines. *Closeouts* are usually expensive. Select merchandise from reputable manufacturers likely to stay in business. They help prepare the customer to buy from you by national advertising. They help put on the cooperative promotional compaigns. They are worth buying from for your own self-interest.

Buy Wisely . .

Buy, don't just be *sold* something. Examine your merchandise for sales features, endurance, lack of comebacks. *Your* customer is going to bounce it in *your* face if it fails to deliver. It pays to reduce service costs at the source. These are the *important* things in buying: (1) National reputation of manufacturer. (2) Public acceptance of trade name. (3) Local jobber or manufacturer's representative and amount of support to be expected from him. (4) Amount and type of competition. (5) Margin or profit.

Deliveries . .

Order in advance. If you work out a rough plan for the year you can prepare for it by buying in time for deliveries. This insures customer delivery, allows you to get sales help material ready, mail out stuffers, advertise, and get your money's worth from your stock.



This table represents the experience of thousands of dealers over several years. While it may not be exactly true for your own town, in general it is. At least it should be a guide to intelligent buying and planning of your sales effort

Finance . . *Terms — yours and your customers*

Profit is what keeps you in business, supports your family, buys your necessities and luxuries, establishes your place in the community. You have every reason to consider it first and most important in your life. Guard it by wise buying, and wiser selling. But most of all, be careful of the "large volume, small profit, cut price" fallacy. It may work on Fords but most of the dealers who have gone broke have followed that will-o'-the-wisp. Here's what happens:

On a 25 per cent margin of profit, a price cut of 5 per cent requires 18⅔ more business; an 8 per cent cut needs 35 per cent more; a 10 per cent cut requires 50 per cent additional business, and a 15 per cent cut requires 112½ per cent more business to get the same profit. If you cut price 15 per cent on a $100 sale, you will have to sell $112.50 more business before you get the profit of $25 to which the original price entitled you.

Cash Discount your bills if at all possible. It earns you your surest profit. With the financing available today for your time accounts, keeping on a sound cash basis is the sensible thing.

Time paper, as an aftermath of F.H.A. financing, is now available from finance companies such as C.I.T., C.C.C., and many banks, at lowest rates of interest and longest terms ever offered. It is still more profitable for a dealer to finance his sales himself, if he has the capital, since he then earns for himself the financing as well as the merchandise profit. Yet he should require a larger down payment, shorter time for paying, and more careful scrutiny of the credit of the customer to be safe. All dealers can turn the new financing opportunities into definite sales points with their customers. For instance:

Compare the values and prices of appliances such as range, refrigerator, washer and ironer of 1928 with those of 1936. Take the refrigerator as an example. In 1928 a 7-cu. ft. box sold for $375, with down payment of $50, carrying charge of $55, monthly payments of $24, 12 or at best 15 months to pay, and the cost of yearly operation was around $23. Today, with a superior product, better value, higher efficiency, more beautiful more usable and more beneficial in all ways, a 6-cu. ft. box, with more usable space than the 1928 7-cu. ft. model, sells for $230, with down payment of $23, a carrying charge reduced to $37, and monthly payments of $6.79, over 3 years. Operating cost is now about $14.60, or 36 per cent saving per year. The same comparison can be made on any appliance.

A Surplus is what every dealer should strive to build up. By making regular, even though small, allocations to a definite surplus account he will find himself with one of his greatest assets in business. With a cash surplus he can take advantage of good buys, he can find the money to remodel his store when he discovers it to be out of style or trend, he can always earn his cash discounts, and his peace of mind will be worth more than all the other reasons. By such sound tactics it may take a bit longer to grow big, but when a dealer arrives at large scale operation he can stay there and survive.

Sell + + + *more effectively by planning*

Selling, after all, is the only thing that brings money to the cash register, profit to the dealer, commission to the salesman. To make your selling more resultful, to close more of your sales, to bring repeat business, it will be worth while to do a little simple planning. Use these suggestions, use the ideas and sales points from this Guide in such planning. You will find them tested and proved, and that they will pay.

The Individual . .

Most vital point—*use it yourself*. There is no substitute for the enthusiasm that only comes from use. Then for individual selling, the cover of this Guide gives the formula for using this material. This applies to the dealer, his wife, to salesmen or any other store help. Study the manufacturers' sales material with these Guides as outlines. You will get at the essentials quicker.

Sales Crew . .

Dealers will get twice as much in results if they plan their salesmen's calls. Salesmen who are expected to locate their prospects haphazardly waste time and effort. It is a simple matter to make "follow up" cards, so that salesmen make at least three calls on each prospect a week or ten days apart, and again after the sale. The latter is one of the best sources of new business, not only for future sales to the same customer, but to obtain leads as to friends who might be interested. The dealer's office can work out a simple system to thus insure every minute being devoted to productive effort. Study of the people in your immediate neighborhoods will develop prospects.

Meetings . .

Next in importance is to keep salesmen stimulated. Regular, informal, sales meetings are very desirable. They serve to keep the entire staff pointed toward the same goals, to exchange experineces, to help meet tough obstacles. Use this Guide as an outline for sales meeting discussion. Be smart. Set aside time for the wholesaler's salesmen or manufacturer's representatives to go over in detail all the construction and selling features of his line. He'll be tickled at the chance and you'll be better prepared to sell. Salesmen are getting scarce. Yet manpower, intelligent and hardworking, under planned action, is a dealer's greatest asset. Why not recruit and train some of the young men coming out of the universities? Far more important than most dealers realize is the need of the dealer to check up to see that salesmen are telling the right story to the right people, that they are not overselling—which will lose customers. It is well to devise some means to observe how salesmen are getting over with prospects other than merely looking over the orders brought in. After all, you hope to stay in business a long time.

Demonstrations . .

Some salesmen do, and some don't demonstrate, but every salesman or dealer, to close more sales, will do well to learn a demonstration routine thoroughly, even if he never uses it in that form once in 50 cases. It makes him quick to use whatever part of it the customer gives him a clue to use. Whatever part he does use will be better sold. In fact one very successful dealer, even where a customer buys without much selling, asks the customer to listen to him demonstrate all of its feature and uses to her so that she will get the most out of her purchase. It means much less chasing back to explain something that had been forgotten before the sale.

The manufacturers usually have such a routine based on their particular appliances. They may vary to some extent, but with each one you should make it possible to give the customer "the feel of the wheel." In demonstrating a range, have one connected up. Take the customer to the range, have her actually try the switches, controls. Have some vegetable ready which will cook quickly and let her put it on with little or no water and actually cook it. Because of wiring you cannot very well send a range out on demonstration, but this is next best. Need it be said that every salesman should learn to cook in order to be convincing?

Group Selling . .

Added commissions, added profit come from a simple but sure fire idea—group selling. For example, with a range or refrigerator, sell a mixer; with a washing machine if possible sell an ironer, or at least an automatic lightweight iron. By combining the total on one contract, the monthly payments on each are proportionately less, and the customer has the advantage of using related appliances together, as she should. You will be surprised how often such a sale can be added to a major appliance sale.

Team Work . .

Experience of the past two years has proved that really big selling events have been brought about by coordinated efforts of dealers, manufacturers, distributors and utilities. It means a stimulated market for every participant. Participate in these movements and help decide their programs, then you will know that they suit you or learn the reasons why they must be changed. The smartest merchants are taking full advantages of these activities. Be just as alert to your business opportunities. Utilities, these days, appreciate that dealers are their best salesmen. But you can get lots of help from them. *It is good business to work together.* Power company representatives should be informed on campaign details, sales ideas, cooperative plans. Do your part by reporting sales, for such reports give you one of your best sales barometers.

Home Service . .

The woman's viewpoint is valuable and the home economists of the utilities and manufacturers are valuable to you in supplying profitable ideas. Follow up your sales, if possible, with home service.

Service Department . .

Do not neglect your service department. Dealers do not realize how many of their customers they lose through faulty service. These customers go to the utility and complain that they can not get proper service when they need it. This is bad for you. If you cannot operate a service department, stocked with ample parts and capably manned, make arrangement with some service organization to do this work for you. Your manufacturers will advise on this.

Keep Up To Date . .

Finally, don't go stale. Keep up by reading your electrical magazines — ELECTRICAL WEST, for instance!

Average Kw.-hr. Monthly Appliance Use

Translate these into cents per hour of operation based on the rates of your local utility. These are the average of several tables of this kind, actual use depending on the customer's own daily habits.

Appliance	*Wattage*	*Average Monthly Kw.-hr.*
Cleaner	360	3
Clock	2	2
Cooker	660	8
Egg Cooker	500	1
Curling iron	30	1
Dishwasher	185	2
Fan	50	1
Grills	500	3
Hair dryer	430	1
Heater	1250	15
Heating pad	60	1
Iron	1000	9
Ironer	1350	14
I. E. S. lamp	200	18
Mixer	100	2
Percolators	450	10
Radio, 8 tube	100	15
Range	7000	125
Refrigerator	160	50
Sewing machine	45	1
Sunlamp S1	450	7
Sunlamp S2	175	5
Toasters	500	8
Washer	190	3
Water heater	...	350

Rates + + *How to sell operating cost*

No need to dodge the subject of operating cost of electrical appliances, nor make any excuses for it. With perfect honesty you can tell any customer that the cost of operating electrical conveniences probably is lower than that for any other apparatus she uses. For instance an entire electric kitchen costs less in upkeep than a car. Lighting costs less than cigarettes for the month. Beauty appliances cost far less to keep up than haircuts. There are many such comparisons which you can use to show the rediculously low operating cost of electrical appliances.

Practically every utility has worked out some of these comparisons based on its own rates. Since these rates must necessarily vary because of differences in operating conditions in each territory we cannot give any general figures here. The table at the left does give some averages of consumption per month for various appliances. These too are apt to vary with customers, depending on how much they use their appliances. In using these, translate them into your own utility's rates. Or better yet, use the charts or schedules the utility has already worked out.

It is decidedly to your interest as dealer or salesman to sell the idea of the real bargain that electricity is. If you agree with a customer that rates are high, you automatically create sales resistance to your own appliance. And rates are the only thing that have steadily been getting cheaper while everything else has gone up.

Displays and Advertising for

Large Stores Employ Experts, Yet Small Dealer Along Simple, Inexpensive Lines That Are

YOU are in business to make money. Therefore anything that is holding back your business you'd like to eliminate. In a spirit of clinical frankness, then, make a diagnosis of your store, its windows, location, appearance. Ask yourself some pretty straight questions. Nobody but yourself need know the answers. It is better that you find them out than your customers. From them you can decide whether it is time to follow the modern trend and improve the looks of your store. It may mean profits and satisfaction, a new lease on enthusiasm and pep.

Are your windows well lighted, tidy, accessible? Is your stock clean or does it, honestly now, look second hand? Does the front look old-fashioned in your shopping neighborhood? Electricity, being so modern, is best sold from surroundings that look modern.

Front and Windows . .

Store fronts of the past were not planned; they just happened. Their 12 to 30 inch window floors were too high for anything but small appliance display. Refrigerators, washers, ranges were up too high. Large merchandise should be displayed at sidewalk level or a few inches above, even though the window stool below the glass should rise to 12 to 24 inches above the sidewalk. It enables window shoppers to see tops of ranges, into washers, etc.

In small stores it is not always possible to carry duplicate models of stock for floor and window showing. The window models must be used for direct selling. This means easy accessibility to the windows so customers will not be compelled to step up to a high level, or feel that they are going on disiplay themselves. Also it is not so difficult to change the display frequently for it does not require all the help in the place to do the heavy lifting.

For the same reason closed window backs are not desirable for the average small store. They shut off too much of the store display, which is valuable because of limited window space to show off all lines of merchandise inside.

Where a smaller window for small appliances is not available, modern tables and display stands, illustrated below, can be built by local planing mills at small cost. Paint these in light colors to match the interior trim. Where there is a small window use a removable platform rather than a permanent high floor. A ramp is useful if your window is raised at all from store floor level.

Modernize Interior . .

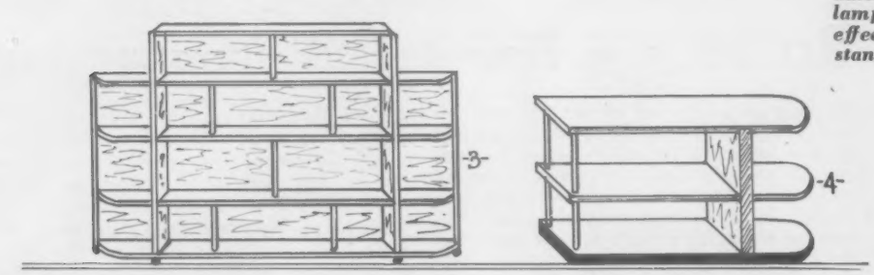
Today's trend is toward bright, light colored, cheerful and simple interiors. A most pleasing effect is produced by painting walls a warm white or light modern ivory up about 7 ft. from the floor. Half round or flat moulding in green, blue, black, or silver, run parallel to the floor, unevenly spaced from the 7 ft. line down, creates a very modern effect. Upper walls and ceilings can be flat white or of a modern design in white wall paper.

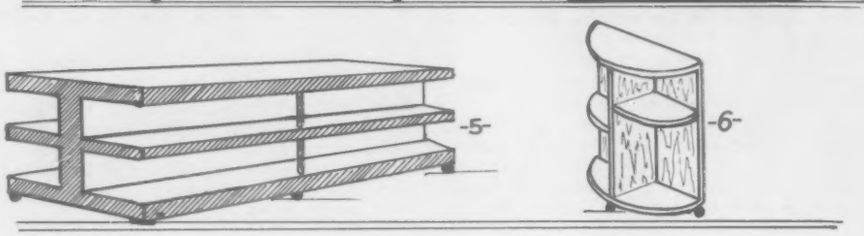
Avoid permanent shelving. Movable shelves and display tables, as illustrated below, allow for variety of effect. *Keep the stock clean.* A wet chamois is excellent for wiping off enameled appliances. Dress up your appliances on occasion. Many a "white elephant" has been sold by a big bow of ribbon.

If you have a fixture stock, devote a rear corner to it. Paper the wall with modern home wall paper to allow prospects to visualize how they look in a house. It is usually well to group related appliances together. And if possible *install an electric kitchen* from which to demonstrate and sell.

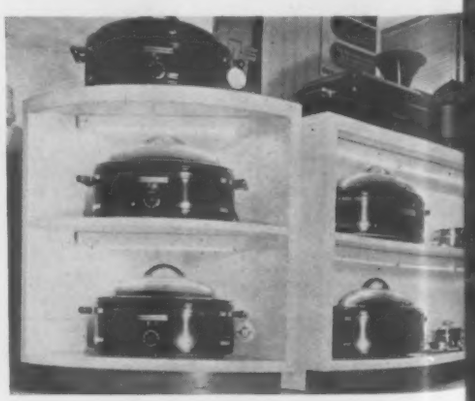
Inexpensive, Versatile Display Pieces

1. Effective lamp and radio tube display case. Center criss-cross shelves display tubes without a "broken-up" appearance. Made of 8 or 10 in. squares, 8 in. deep. Side shelves useful for other small wares, lamps, or clocks. 2. Round end sales and display counter, used with display case background or separately. Provides appliance display on front shelves; storage in back if built 24 in. wide. Top of inlay or prestwood board varnished and waxed. Chrome bars most effective. Lumiline lamps under shelves snap up the display. (See photo at bottom of page.) 3. Portable wall case with plywood back; chrome shelf supports. Built in pairs, can be used for center store display. 4. Small floor display stand with natural finish prestwood top, chrome bars, and toe space if possible





5. Display table for larger store; accommodates wide selection of appliances. Lumiline lamps under the shelves add greatly to the effectiveness of all these tables. 6. Half circle stand, can be used singly or in pairs. Very useful for floor or window displays



the Small Store

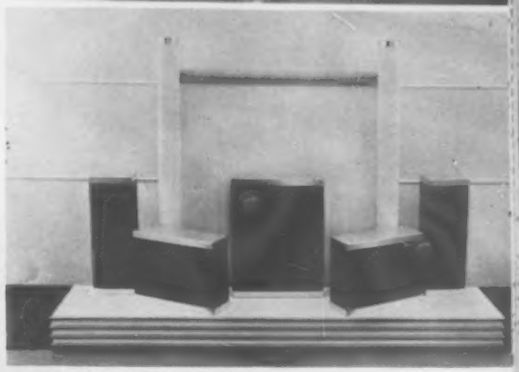
Can Do Wonders Suggested Here

Displays . .

Probably your cheapest and best form of advertising will be your windows. Change them reasonably often. When changing make it an event. United Cigar Stores put up a sign that you can copy—*"This is our window trimming day. Watch for new specials."* Several inexpensive ideas are contained on this page. Read ELECTRICAL WEST and other trade papers for other display ideas. Try to get a note of individuality in your windows. Also variety. Sometimes concentrate on one appliance or idea. Other times load the window with small things. People like to look for something they want in a windowful. Play up seasonal ideas, local events. Above all, use *light* with good effect—spots, or floods, but always *use light.* There are more night window shoppers than you realize. Use wording from this Sales Guide for window card slogans.

Your Advertising . .

To avoid going over your head, lay out a budget for advertising based on your total sales. Appropriate from 1 to 3 per cent of gross to it, and *plan* its use. Big stores work closely to a plan. You'll be wise to do so too. You avoid waste, check up every proposition more closely, and spend to better advantage under a plan. Aim to reach the most people capable of buying your wares. It is better to concentrate on a certain group than scatter your shot. Penny post cards, with a personal message to your past customers, will sell effectively, if you tell them in the words of this Guide how they may *enjoy* the *use* of some appliance. Use the high class mailing material of your manufacturers in your mailings. Be listed prominently in the 'phone book. Advertise regularly rather than in one big splurge. at least *tie in with campaigns.*



Cheapest yet best looking display material is colored corrugated board. With box and circle end pieces substantial display shapes can be fashioned quickly and used with small platforms for small appliance display

Today's display trends call for simplicity—not too much of anything in a window at a time. Bright colors and metal trims are in vogue. Note above a balanced broadside display, and below it a corner window effect. Manufacturers today offer dealers sensational display material at low cost. The spectacular range at left, with mirror to show glass illuminated top units in action, and glass doors is an example. Note the attractive chrome and maple stand at left for small appliance display. Attractive posters for displays are also available

Deliveries . .

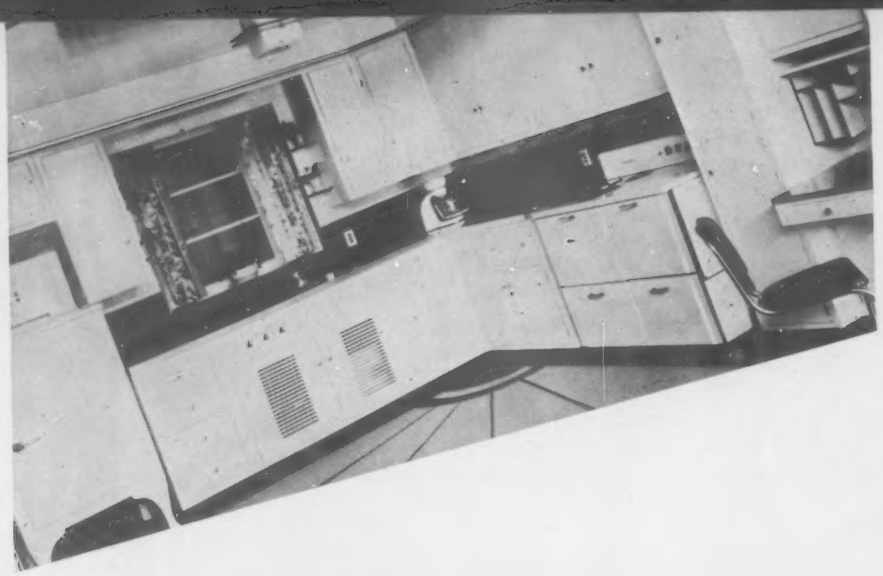
Scarcely anyone appreciates the importance of neat and attractive wrapping in bringing satisfaction with a sale. It is part of the showmanship of selling and gives just that added touch that brings the customer back to your store the next time she is ready to purchase. It costs very little to get a roll of tissue paper, a spool or two of colored cellophane tape and attractive stickers and learn to do a careful, good looking job.

Wrapping . .

The same may be said of deliveries—part of the showmanship of good selling. Smartest merchants, who want the least fussy service trouble over trifles at the very beginning, make a practice of uncrating and testing every refrigerator before delivery. They check the accessories, look over the finish to make sure it is perfect, clean out any dust or dirt. Then they see to it that enough men, and neat and clean equipment, are used to make a business-like and satisfactory delivery and set-up in the home. Treat the new "jewel" of the kitchen with respect and your customer will feel twice as proud of her new purchase.

+ + KITCHEN + +

REFRIGERATOR + +



Mrs. Customer:

An Electric Kitchen

will give you:

Comfort

Your electric kitchen will be cool, clean and fresh, even during hot weather and while you are cooking. You will be proud of its beauty and cheerful airiness. You will enjoy the romance of cooking with its modern equipment. You will take pride in showing it to your friends, using it for informal gatherings. Its harmony of color and atmosphere will give you lasting satisfaction and enjoyment.

Economy

You will save time, work, and money. Your electric kitchen is arranged to eliminate lost motion—needless steps. It allows you to prepare your meals quickly and easily. Its labor savers and convenient arrangement take the effort out of cooking. It is easy to keep clean and it saves you money on upkeep. It replaces servants. Each of your three meals a day will be more economical, for the range and refrigerator cut the cost of food.

Health

You can preserve, cook and serve food in a condition of prime freshness. Your electric kitchen will keep air, utensils, dishes—everything that contacts food—more sterile. It will preserve vitamins. It will help you serve more appetizing and attractive meals. Its cool freshness and freedom from fumes will save you from fatigue and worry. It will protect the health, and add to the happiness, of yourself and your family.

Freedom

You will have leisure. You can prepare foods in advance, have time to spend with guests. No longer need you wonder "what's happening in the kitchen." Your kitchen will perform constantly, faithfully, independently. Automatic controls will watch the pots. It will protect your hands, your complexion and your disposition. You will be free from feeling that you look as though you've been cooking.

Safety

Your food will be safeguarded against spoilage and contamination. Your home will be free from the danger of fumes or open flame. The kitchen will add to your confidence and peace of mind.

A Refrigerator

will:

Pay for Itself

First of all, your refrigerator will really preserve your foods for long periods by never allowing them to rise above 50 degrees. This will permit you to buy in quantities, taking advantage of sales and specials, and low prices on large cuts of meat. It will save the pennies that you usually throw away in spoiled food. It will allow you to keep leftovers and convert them into delicious dishes. By cooking for more than one meal and keeping the cooked dishes fresh in the refrigerator, you can make further savings on fuel consumed in your range. Addition of a refrigerator may qualify your home for a cheaper electric rate, thus saving money on the operatoin of your lights and appliances. Efficiency of new models makes further savings in current costs.

Improve Food

It will make your dishes more appetizing and attractive. Your salads will always be tasty, fresh and crisp. You can add variety to your menus. For your refrigerator will preserve one course, cooked earlier, while you are preparing another, and it will allow you to prepare quickly, easily ice cream, frozen dishes and chilled desserts. It will enhance the fresh, cool flavor of all your favorite cold dishes. It will keep your water, milk and beverages perpetually cool and refreshing.

Protect Health

Your food will be constantly guarded against bacterial growth. Vitamin content, food value, and fresh wholesomeness will be conserved. Spoilage will be prevented. You will know that your family is eating food which has lost none of its vital health giving properties through having been kept in too warm a place.

Beautify Your Kitchen

A gleaming white modern model will brighten your kitchen. Portability allows its connection, simply by plugging in, at the most attractive, convenient location. Besides being a piece of equipment which will give you real pride in your kitchen, it will stand as a logical first step toward future addition of other electrical units.

Save Time

By quantity cooking, you can prepare more than one meal at a time, keeping your dishes fresh and appetizing in the refrigerator. During illness and when your time is demanded elsewhere, you can rely on your family's finding wholesome food should they go to the kitchen for a "snack." No longer will the kitchen demand your constant watchfulness. You can plan ahead, knowing that your refrigerator will keep your dishes waiting, unimpaired, while you have time for entertaining guests, relaxation. Your refrigerator will be invaluable in helping you assemble quick lunches or refreshments on occasions for which

you have not planned. Its smooth lines, new fittings, convenient arrangement and automatic operation eliminate demands upon your time for maintenance, cleaning or adjustment.

Give Constant Service

Day in and day out, your refrigerator will never stop. Unfailingly, it keeps food temperatures below the danger point. The minute it is plugged in, it begins to work. No connections, no fuel, no adjustment. Should your house be left empty for a few days, a week, your refrigerator goes right on operating. Should you move, it again can be plugged in, and immediately is in operation.

A Range

will:

Preserve Food

Cooking on your electric range without excess heat will keep foods from shriveling and drying. Controlled temperatures will preserve the dietetic values. Waterless steam cooking will maintain vitamin content and prevent loss of mineral salts. *(Salesmen should be well armed with first-hand information on new cooking technique, so that they can convincingly explain how these advantages come about, and what they mean to the customer in economy and health.)* Color, flavor and digestibility of your cooked dishes will be retained. Clean, quick, penetrating infra-red radiation of heat into the food, plus freedom from fumes, assures fast cooking without contamination of flavor.

Keep the Kitchen Clean

Pots and pans, used on your electric range, will remain dollar bright. The electric range demands no oxygen. Air remains clean and fresh. Walls, shelves and other kitchen equipment remain free from condensation. Modern styling makes it easy to keep the range bright and clean. Freedom from excessive heat and clean-cut design puts an end to the usually hard task of cleaning up after the meal is cooked.

Keep the Kitchen Cool

Efficient use of heat, attained through excellent design, prevents your range from warming the entire kitchen. Even on hot days, your kitchen will stay cool. Fresh air, uncontaminated by products of combustion, keeps the kitchen free from stuffiness.

Speed Your Cooking

The new model ranges are fast cooking. In addition they allow you to control cooking speed, and will govern themselves automatically, while you can occupy yourself with the preparation of other dishes.

Relieve Your Mind

Even little children can be directed to turn on the range without fear for their safety. You know that a simple turn of a switch sets it in operation. No matches are needed. You can leave your home without fear of the children getting into dangerous mischief in the kitchen. Or you can leave the house unoccupied with food cooking, knowing that electric control will faithfully guard your favorite dish.

A Mixer

will:

Save Your Hands

Tasks that tire your fingers and arms will be done for you by a mixing machine—mixing, beating, mashing, churning, peeling, grating, shredding, sharpening, stirring, polishing. It will free you from dry, chapped hands.

Save Your Time

A mixing machine will do its job quickly and surely. It never tires. Some of its chores it performs by itself, allowing you to occupy yourself with other things. Others it does so rapidly that it saves minutes over the time required to do the task by hand. With your mixing machine you will be able to make many of those dishes that you have intended to make sometime, but have not got around to because of the hurry and strain of getting a meal prepared on time.

Relieve You

Preparations which once meant aching muscles and uncertain results will become a pleasure when the mixing machine relieves you of the hard work. It will improve your cooking, because its operations are smoother and more uniform than is humanly possible.

A Table Stove

will:

Travel With You

If you are going to a house in the country, at the beach, or to a camp where there are electrical facilities, your table stove will allow you to cook with much of the convenience of a full-sized range. You can immediately have adequate cooking facilities merely by plugging it in. You can cook a roast in the oven while another dish is cooking on the open heating element. You will like its compactness, which makes it easy for you to carry about.

A Fan

will:

Keep Up Your Vitality

Maintaining a fresh supply of air in your kitchen, the fan will keep up your energies, prevent that feeling of exhaustion so often due to the toxic effects of stale atmosphere. It will quickly banish cooking odors, preserving the pleasant attractiveness of your kitchen.

A Server

will:

Preserve Your Hot Meal

With the server you need not fear that unforeseen interruption between the cooking and serving of your meal. It will keep your food warm, just right for serving, without further cooking. Throughout a long meal, it will keep second servings hot and tasty. Beautiful and modern, it will give you pride in your service, and enrich the attractiveness of your food.

Assure Results

Your electric cooking will demand no guesswork. Heat levels and cooking speeds are constant. Thermostats assure you of constant temperatures. Automatic controls relieve you of the necessity of keeping an eye on the range. You can determine in advance the temperature and time at which you want a dish to cook, set these in advance, and forget about them. Your range will perform for years. Its rugged design and freedom from wearing, moving parts and from excessively high temperatures guarantee you its long, uninterrupted service.

A Radio

will:

Be Good Company

Not only will the kitchen radio be your entertaining and amusing companion, but it will give you a chance to hear many of those interesting programs which you have missed because you had to be in the kitchen. News flashes and educational programs will be available to you while you are doing things about the kitchen which do not require your close attention. Musical entertainment will make your kitchen an enjoyable place to be.

Notice

For information on table appliances, lighting, and wiring, all important to the maximum effectiveness of the electric kitchen, see sections under those names elsewhere in this Sales Guide.

Individual guides, containing more detail and presenting a sample sales talk on the subject concerned, were published as follows: Electric Kitchens, July 1936; Ranges, March 1936; Refrigerators, April 1936; Water Heaters, May 1936.

RANGE + + + + MIXER

+ + DISHWASHER

A Dishwasher

will:

Save Your Hands

The effects of harsh soaps, hot water and scouring cannot be counteracted by the finest lotions. But with your dishwasher, you can keep your hands free from these injurious agents, keep them fresh, the skin natural, unblemished.

Prevent Breakage

Your dishwasher has no fingers through which slippery plates can slip and break. It will protect your most prized china. It will save money. *(Conservatively estimated at $6 per year on inexpensive ware.)*

Preserve Your Complexion

Your dishwasher takes you away from the steam which rises from a dishpan. It frees your face and your hair from ruinous hot vapors.

Do a Better Job

Your dishes will be clean and sterile. Your dishwasher has no nerves and can use water too hot for hands, hot water which cuts grease, combats germs, really cleans, prevents contamination and safeguards health.

Replace Help

By doing the most distasteful task of housekeeping, relieving you of drudgery, the dishwasher saves you time. It saves you money by taking the place of a helper in the kitchen.

Relieve Your Feet

How often standing over the sink after dinner has been the last straw! Your dishwasher will work for you. It will let you rest.

Give You Freedom

The thought of cleaning up that mess in the kitchen will no longer cross your mind. For you know that your dishwasher will do it quickly, efficiently. You can rely on others operating it and be assured that the task will be well done.

A Waste Disposal Unit

keeps:

Kitchenwork Pleasant

Disagreeable journeys to the garbage can are made unnecessary. You can dispose of all foods which might contaminate by merely putting them in the unit. Only occasional trips need be made to take away cans and bottles. The disposal unit saves needless steps.

Garbage Bills Down

Less waste will be carted from your home. Only occasional calls will be necessary to take away dry refuse, which may accumulate over a long period of time without giving rise to obnoxious conditions. Thus you will save money on your garbage bill.

Your Sink Clean

Peelings and bits of food need no longer accumulate in the sink. Your waste disposal unit will quickly grind up and eliminate peelings, wastes, scrapings, bones, fruit pits and corn cobs.

Your Kitchen Odorless

The unit eliminates odors, keeps the atmosphere of your kitchen fresh and clean, by disposing of the waste which might give rise to odors. It will do this for you quickly and quietly.

Scavengers Away

Ants and animals will no longer forage around your garbage can for their meals. The unit will dispose of the foods which putrify and attract flies and roaches. Your garbage can, kept dry, will last long.

Your Plumbing in Order

The polishing action of the ground materials discharged into your plumbing by the disposal unit will scour the system. It will prevent clogging.

A Water Heater

gives you:

Protection

Sudden illness in the night; long, anxious minutes while you wait for a kettle to heat water—your electric water heater banishes the chance of this event. Faithfully it stands ready, maintaining a supply of water for your instant demand. The unexpected arrival of guests occasions no embarrassment. You are relieved of concern over whether or not there will be sufficient water, ready at the time, for the unusual demand. Your careful preparations for hospitable reception of your guests will be matched by the performance of your electric heater. It will always deliver hot water in abundance. You will be able to protect the health of yourself and your family with the hot water which your physician tells you is both internally and externally so efficacious.

Economy

The efficiency of your water heater is 100 per cent. It saves you money because every unit of energy you purchase for it is converted into heat, and every unit of heat passes into the water. Your water heater has no flue. This means that no heat is exhausted to the atmosphere and that you do not have to pay for installation of the flue itself. Insulation protects your water supply, prevents heat from flowing out of the stored water. Your water heater can operate on special electric rates, providing you with a cheap source of energy. Throughout the long life of the water heater you can foresee a constant energy supply, available at an ever decreasing rate. Your heater is a definite addition to the value of your home. It is a modern asset, and a strong taking point in the event of sale. In many cases more dollars are saved by the qualification for low insurance rates.

Safety

Your water heater is on guard against every kind of failure. Automatic controls, thermostats, relieve you of all concern. Stoppage or failure of water supply will be cared for. It cannot overheat. It cannot freeze. You can leave it indefinitely, knowing that it cannot boil, that it need not be turned off, that it is dependable, that an interruption to its service cannot lead to a dangerous escape of fuel or a failure to operate. Immeasurable in money, is its contribution to your peace of mind.

Luxury

You need never wait for your electric water heater. You can take your hot bath when you want it, can save those impatient minutes that you would otherwise spend waiting for the tank to heat up. You will always have the hot water which is so energizing, and so beneficial to the skin and complexion. You will be able to avail yourself of this most vital yet inexpensive beauty aid, which you have probably had to deny yourself, at least partially. You will take pride in the beauty which your new water heater will add to your home. Its modern appearance and unfailing performance will be a constant source of satisfaction.

Convenience

You will discover more than 30 ways in which hot water can be used daily to ease and simplify your homekeeping, to make living more satisfying and pleasant. Hot water eliminates many of the tasks which you have found disagreeable. Constant availability of hot water means that you can do your cleaning the minute you want to, rather than wait until you have hot water, at which time a seemingly unconquerable amount of cleaning may have accumulated. Hot water at 150 deg. dissolves grease, simplifying cleaning and allowing you to keep your kitchen cleaner. You will not have to "pat the tank" to see if water is hot. Hot water will speed your cooking, for it will take a shorter time to bring it to a boil. *(The salesman should be thoroughly familiar with the 30 uses of hot water and be able to explain how these save time and effort and inconvenience. Information from the manufacturers and utilities can be supplemented by details in the Water Heater Sales Guide of May, 1936).*

+ + WATER HEATER + +

A Vacuum Cleaner

Dealers:

Today's need in vacuum cleaner selling is recollection of the fact that vacuum cleaners first sold by demonstration, and recognition of the fact that they can still be sold by demonstration.

Here and there salesmen are still offering proof of this long standing principle. But for the most part it is being forgotten, strangely enough forgotten most often in connection with the appliance which made it so evident.

Improved models more effectively render the same services on which vacuum cleaners first sold. In addition they offer a variety of new services and conveniences. To forget either of these is to overlook a big market for new users and a bigger market of obsolescence.

Refresh your memory on the fundamental advantages of a vacuum cleaner to the consumer. Acquaint yourself with the additional services that the new models will render. Tell your customer what the vacuum cleaner will do—and prove it by demonstration.

Cleans Deeper

Dirt that lodges in tiny cracks and depressions is reached by your vacuum cleaner and sucked away—dirt that can be reached by no other method. It cleans your home with a thoroughness that is otherwise impossible. It is your ally in maintaining an immaculate household.

Sucks in Dust

Your vacuum cleaner stirs up no dust. You can dust flat surfaces first, then your vacuum cleaner will capture the fallen dust, leave the room perfectly clean. No longer will you be chasing dirt from surfaces to floor and back again, in an endless circle. Your vacuum cleaner drags in the dirt and holds it.

Saves Effort

Your vacuum cleaner moves effortlessly. It saves your arms and back from ache and fatigue. It eliminates tiring sweeping and forestalls hard scrubbing. Your new model will operate without the necessity of your bending down to make adjustments. It will light its way, you can see what it's doing without guesswork or awkward peering.

Works Everywhere

Your new model will work more easily on all kinds of jobs. Its two speed motor gives you the powerful suction which digs deep for dirt, yet you can turn it to low speed and clean light rugs without having edges annoyingly drawn up. You can make adjustments for rug thickness without leaning over, thus during a cleaning saving many tiring processes of bending down.

Protects Health

Germ laden dust is kept out of the air. Cleaning your home will no longer mean working in an unhealthy, dirt-laden atmosphere. Your vacuum cleaner will do a more thorough job, giving your family's health the protection of maximum cleanliness.

Add to Your Liesure

Your new vacuum cleaner is fast and powerful. It does a better cleaning job in less time. It relieves you of the oppressive strain of dirt chasing. With every cleaning, it gives you extra minutes free.

Economizes

Your vacuum cleaner draws the grit from rugs and floors. Tiny abrasive particles which produce wear are banished from your home. This protects the polish of your floors and increases the life of your rugs. Moth larvae are drawn from rugs before they do their damage.

Brightens Your Home

The ease and speed of vacuum cleaning take the effort from cleaning. You can clean more often and do it thoroughly without tiring. While you are actually giving less time, thought and effort to it, your home will become perpetulaly brighter.

A Hand Cleaner

Can Be Transported

Your hand cleaner will occupy very little space. It easily may be carried with you in your automobile. It will save effort in carrying up and down stairs.

Goes Into Cupboards

You can use the hand cleaner to clean cupboards, drawers, small closets, and other places which would be impractical or impossible to clean with a larger cleaner.

Reaches Corners

The small dimensions of your hand cleaner will enable you to reach into crevices too narrow for another cleaner.

Does Small Jobs Easily

You can give curtains a quick cleaning, easily, with a hand cleaner, doing the same job which your larger cleaner does on rugs. It is most convenient for cleaning the automoblie.

Blows Dust

The inside of the piano or the radio, small cracks and crevices can be blown out by the reverse action of the hand cleaner, operated as a blower.

Accessories

Polish Floors

The difficult or expensive polishing of floors can be done easily with a floor polishing attachment. You can keep your floors bright, touch them up by merely putting on the attachment and going over them.

Do Odd Jobs

Many cleaning and polishing tasks which you would like to do, but do not believe them worth the time or energy, can be done with accessories. Extensions enable you to give the automobile a thorough cleaning.

Save Time

Tasks which were once troublesome and tedious are done quickly and easily.

Make Housekeeping Easy

The multitude of small things that mount up to make exhausting labor are handled without seeming effort, when electric energy replaces exhaustible human energy.

A Sewing Machine

will:

Reduce Clothes Expense

You can sew more things, and will enjoy doing it, with your electric sewing machine. You can save many dollars which might go to a dressmaker.

Make Sewing a Pleasure

The many attachments which allow your sewing machine to perform all manner of pleating, shirring, etc., will afford you endless enjoyment. Sewing which you forewent because it was too complicated or exacting you can do with ease.

Speed Your Mending

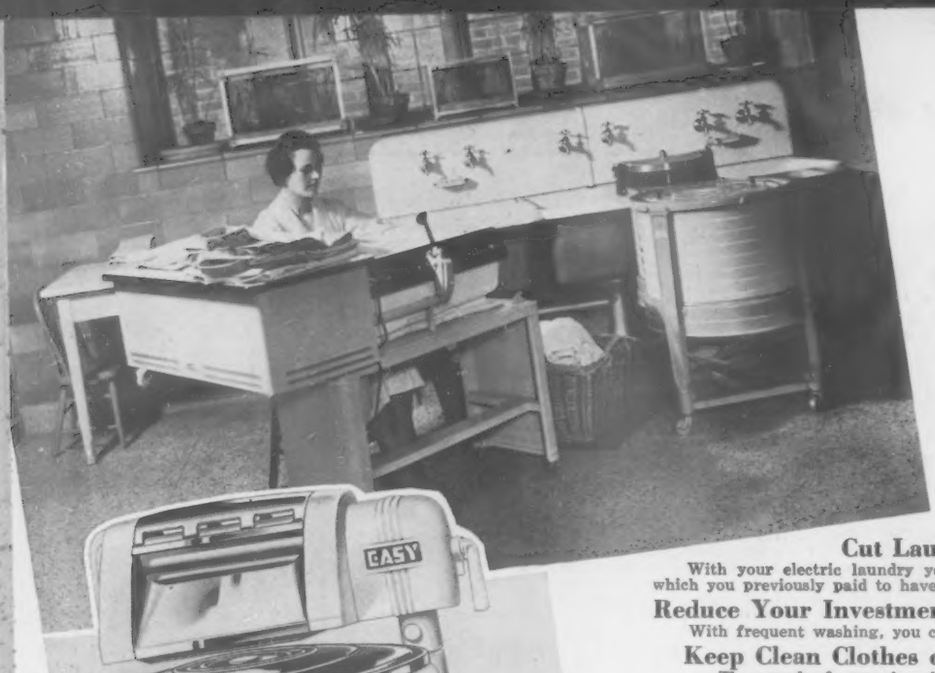
How often sewing has tired your neck and shoulders. With your electric machine you can do the mending quickly, and every minute of it will be enjoyable.

Be a Beautiful Asset

The attractive cabinet carrying your new model will be an attractive piece of furniture in any room. When closed, with the machine protected and out of sight, you will find it beautiful and useful as a stand or table.

♦

[Other housekeeping aids include the floor polisher that takes the backbreak and caloused knees out of floor upkeep; the spray for dampening ironing so effectively; the electric scissors that can cut silks or heavy suitings with equal ease, and other appliances shown elsewhere in this Guide.]



An Electric Laundry,

Mrs. Customer,

will enable you to:

Cut Laundry Bills

With your electric laundry you can easily, effortlessly wash at home the heavy pieces which you previously paid to have washed elsewhere.

Reduce Your Investment in Clothes

With frequent washing, you can decrease the amount of clothes and linen kept on hand.

Keep Clean Clothes on Hand

The speed of your laundry eliminates the long, hard washday. Washing can be done when needed, the supply of clean things effortlessly kept fresh.

Protect Fragile Pieces

Being your own laundress, you can take infinite care with the things you really value, save money by elimination of damage.

Save Dollars Each Week

Work which previously required outside help, at a cost, you can do for yourself without becoming tired.

Care for Your Health

Your laundry will relieve you of back-breaking, exhausting labor. It will save you from the dangers of overwork.

Gain Satisfaction

You will take pride in the modern, sensible efficiency of your home laundry. Its lasting, trouble-free service will give you satisfaction.

Preserve Clothes

The use of soap and pure water only, the guarding of weak spots, will allow you to keep clothes longer, wash them more times, reduce the family clothing bill.

Be Certain of Sanitation

You know how your clothes are being washed and that they are not being washed with those of other families. You know that no injurious, discoloring disinfectants are employed.

Prevent Loss

Your precious pieces cannot be lost when they never leave your home.

WASHERS + + +

A Wringer Washer

Speeds Your Work

Your wringer washer will handle clothes rapidly, its fast action will reduce the time between rinses, saving you many minutes on each wash.

Protects You

Design of the new models assures you of safety. They cannot catch your hands or hair.

Protects Your Clothes

Gentle, even pressure will quickly squeeze the water from cloth, without breaking or pulling buttons. It will not tear or injure your fragile pieces.

Saves Space

You will have freedom, convenience, plenty of room with a laundry equipped with a wringer washer. Its design is compact and efficient.

Costs Less

Simpler design and its ability to handle large washings, save you money.

A Dryer Washer

Dries Thoroughly

Particularly in rainy weather, you will appreciate the convenience and time saved by spinning clothes until they are ready for ironing.

Handles Bulky Materials

Even your blankets and pillows can be both washed and dried.

Is Safe

The spinner protects you by being inoperative until hands are out of the way.

Services Itself

Many pump-equipped models fill and empty themselves. They do the heavy work for you, save time and effort.

Tray Washer

Will Save Space for You

Even the smallest laundry porch, as long as it has wash trays, can accommodate a tray washer. Houses without trays can use it on portable trays. Can be moved easily with you.

Saves Handling of Water

Just turn on the faucet to fill it; pull the stopper up to empty. Water will stay hotter in the cement trays, thus saving on hot water and fuel. There are less steps to take to do a washing. Washes just a few things or a tubfull with the least effort.

An Ironer

will:

Save Your Energy

You can be seated while you iron. Your face will keep cool, for it will not be over the hot surface. Ironing will become a pleasant pastime. Your ironer will do the work, you merely guide it; you are relieved of lifting. An added pleasure will be the convenient location of your ironer in a pleasant place.

Save Your Time

You can save ⅔ of the ironing time on flat pieces, ⅓ on most clothing. Your ironing time will be decreased, giving you time for freedom, relaxation.

Save Your Money

Your ironer will be economical to operate. **(Most models on most rates, 3½c per hour, 27½c per month).** It is so quickly and easily operated that your family will require fewer clothes. It will steam and press. Suits and heavy goods can be done at home, saving on pressing bills.

Do Better Work

Your ironer will not tire. It will be as fresh, and so will you, at the end of the job as at the beginning. It always irons in one direction, and maintains an evenly distributed pressure (150 lb.), turning out professionally finished work.

Protect Your Clothes

Your ironer will control its temperature, protecting clothes. Its even, gentle pressure will not harm fine textures. It will save your woolens by killing moth larvae.

Beautify Your Home

Your ironer will be an attractive addition to your laundry. It will always be a piece of equipment which you may display with pride, and when not being used for ironing will convert into a convenient, useful table. You can keep curtains and rag rugs freshly pressed, adding to the attractiveness of your home.

An Automatic Iron

Assures Safety

Automatic temperature control in your new model iron positively protects against overheating. The relief from anxiety over fire hazard is immeasurable. A forgotten automatic iron is perfectly safe.

Will Give You Service

Besides being designed for speed, ease of operation and modern beauty, your new model iron will perform long and faithfully.

Saves Time

Your new iron will heat quickly. You save the time usually spent waiting for it to warm up, and its automatic temperature maintenance assures you against interruption from its cooling.

Protects Clothes

You may set the temperature suitable to the cloth. Your automatic iron will maintain this indefinitely. It eliminates the possibility of scorching, and it keeps the iron as hot as you want it.

Is Easier to Use

Light, balanced weight saves you work with every motion. Your iron will respond effortlessly, handle easily.

Will Do Odd Jobs

Whether or not you have an ironer, your hand iron will be useful in dozens of ways, for pressing out a seam, spotting, smoothing a wrinkle, etc., in dressmaking.

A Clothes Dryer

will:

Work All Year

Your clothes dryer will work rain or shine. No longer need you postpone a washday or suffer inconvenience because of weather.

Save Steps

You can hang your clothes in the dryer without long, tiring trips to the clothes line.

Save Worry

You can rely on your clothes dryer. You need not wonder what you'll do if the wash doesn't dry. You need not fear damage from wind or sun.

Modernize Your Laundry

Your clothes dryer will form a unit in your modern laundry, and will add to your freedom, convenience and peace of mind.

A Complete Plan

Keeping service to the customer constantly in mind, the salesman should regard the sale of any piece of laundry equipment as a step toward the complete home laundry. The value of services delivered in excess of cost is the basis for sale. The many sound features of any item in any line are secondary—merely proof that the service will be delivered.

Sketches and plans, building up a mental picture of the beauty and convenience of the eventual home laundry, the special service of some accessory such as a hot plate, heater, radio or interphone—all or any may be invaluable to sales effectiveness. Mention of satisfied users is vital.

Know your product, what it will do, and how to show the customer what it will do. Supplementing your sources of information and the outline above is the section on Water Heaters, and the Home Laundry Sales Guide, with sample sales talk, published February, 1936.

TABLE APPLIANCES

Mrs. Customer:

Table

will give you

Leisure

Table appliances offer relief from kitchen cookery; more time to enjoy the pleasant companionship of the luncheon or dinner table; an opportunity for unhurried, graceful hospitality. Save yourself needless trips to the kitchen; and extra hours in cooking with this modern method of meal preparation.

Fame

as a good cook and delightful hostess. Modern table appliances permit the preparation of a wide variety of tasty appetizing recipes that enhance the bridge luncheon, or after-the-theatre supper. Delicious hors d'ouvers for the cocktail party—buffet suppers—evening snacks—all are more quickly and easily prepared with the help of these new electrical servants.

The Electric Roasters

will:

Save Time

by preparing a whole meal without attention and permitting it to be served right at the table piping hot and with all the goodness of the food cooked in instead of burned out. It lessens housework and simplifies meal preparation and, by requiring no attention (it cooks automatically) releases extra hours for extra enjoyment.

Guard Health

by conserving the nutritious elements in the food, retaining the vitamins and adding to palatableness. Electric cookery insures that the menu will contain full nourishment and all the delicious flavor that only retention of the natural juices can provide.

Prove a Versatile Servant

It has many uses: excellent for picnics or summer homes where hot food preparation would be difficult; a time-saver in the canning season as small batches (six or seven pints) of choice preserves can be heated in the roaster; will bake biscuits or other pastry right at the table and save you heating up a large oven.

A Toaster

will:

Simplify Meal Planning

Toast always is an acceptable item on any menu. For breakfast, the automatic toaster guards against burning and permits attention to be given other dishes. For parties: toast adds zest to the many appetizing cheese, preserves and other popular sandwich spreads. For luncheon try toast instead of biscuit as a fundation for creamed dishes.

Please Your Taste

by making just the kind of toast you like best. Light brown, dark brown, Melba—just set the timer and let these handy servants do the rest. Burnt toast is eliminated with attendant economy in time and bread and dispositions are saved for the day. Husbands will appreciate the extra time saved for skimming the morning paper because they can make the toast and read too.

A Waffle Iron

will:

Add Variety

Fifty-six different kinds of waffles can be made—an endless variety of appretizing surprises for the family. Sandwiches also are improved by a few moments toasting in the waffle iron. Clever hostesses take advantage of the many tasty recipes that can be prepared easily and quickly. For instance use waffles instead of pastry layers for shortcakes. Try a three-layer, cream filled dessert surprise—it's easy to be original and prepare new recipes yourself.

A Coffee Maker

will:

Improve Flavor

Scientific brewing is just as necessary as scientific roasting and blending to obtain the full flavor from coffee. Made the electric way, coffee never is bitter, because bitter oils are not boiled out and because the coffee is never "burned" by prolonged excessive heat. The electric coffee maker insures consistently good coffee—coffee that will add to the pleasure of the meal and enhance your reputation as a cook.

Appliances

Economy

in fuel and food. Quick, clean electric heat prepares just the right amount of food right at the table. No waste, no leftovers and, best of all, the appliances themselves, built by reputable manufacturers, will last a lifetime.

Pleasure

Table cookery lessens housework, fewer pots and pans to wash, permits more time to be spent with the family. You will enjoy the added charm made possible by the handsome appearance and modern styling of the 1936 line of appliances.

An Electric Grill

will:

Conserve Time

At breakfast, particularly, will the electric grill demonstrate its versatility. Eggs, bacon, hotcakes or chops can be prepared in a jiffy, right at the table, served piping hot. Early risers can get their own breakfasts with no trouble or bother—a hint for wives who want a few extra winks of sleep. Ideal for that early golf foursome; just the thing for a buffet supper after the football game.

Make Luncheons Easy

Grilled meats, toasted sandwiches or tasty waffles offer a pleasing variety of easily-prepared luncheon dishes. Saves time and energy required for needless trips to the kitchen. Will keep sauces or beverages warm during the meal—second servings are as tasty as the first. Grand for re-heating leftovers or keeping a meal hot for late comers.

Electric Buffet Service

A sure-fire climax to any party is an electric buffet srevice. Guests like to help themselves and appreciate the goodness of appetizing hot dishes prepared the electric way. Solves the hostess' problem of "different" refreshments. Try it yourself. With a few well-chosen modern, handsome table appliances, sandwich materials, a rarebit already for cooking in your electric casserole or chafing dish, and coffee bubbling in the coffee maker, it is easy to create the gay, intimate atmosphere essential to the success of any party and your reputation as a hostess. In addition to roasters, coffee makers, toasters, waffle-irons, grills and hotplates, there are:

Casseroles

Which will prepare tempting baked recipes with new taste sensations. No danger of burning, no drying out, just right every time you let this handy electric servant help you prepare your meals.

Chafing dishes

Ideal for omelets, rarebits, or other epicurean delights which demand a slow oven heat (possible only the electric way) to bring out all their delectable flavors.

Biscuit bakers

A miniature electric oven, styled to enhance the appearance of the table and designed to turn out small batches of perfect biscuits at just the right speed to keep everyone supplied with these hot, golden brown dainties during the meal.

Egg cookers

Small, efficient and handsome, this appliance will prepare eggs to your pleasure; soft boiled, hard boiled, shirred, poached, scrambled or fried, right at the table. Inexpensive, economical and convenient.

(Dealers—the manufacturers are giving more and more attention to style and appearance. Groups of appliances now are available in the same design. Matched ensembles appeal to the feminine desire for added charm in the appointments of her home. Capitalize on this feature to build more profit from table appliances by concentrating on selling ensembles of appliances instead of individual pieces.)

RADIO + + PHONOGRAPHS + + WORKSHOP + +

A New Radio

(More disastrously in radio selling than anywhere else, are the consumer's interests forgotten while the salesman launches into a meaningless explanation of elaborate technicalities. These features may be the products of colossal genius, they may double the set's effectiveness. But they mean nothing to the sale until the consumer sees what they mean in terms of what they will do for him. And to see he must first be told, then convinced by a clear explanation of the feature itself. See August 1936 Sales Guide for further ideas.)

brings you:

Style in Furniture

You may select your new radio in a model which matches the atmosphere and decoration of your home. It will be a beautiful addition to any room.

Infinite Variety

Your new set will bring you intimate glimpses of far away places. You can travel through air with your new set. It will increase the interest and variety of your entertainment.

Contact

You will be in touch with the trend of the times with your new radio. News broadcasts, the great stars of the air waves, are at your command.

Education

Radio programs grow finer every day. With your new set you can get maximum value from these educational offerings.

Entertainment

The hours of radio enjoyment with which you are familiar will be made more pleasant by the added beauty and faultless performance of a new radio.

Contentment

You can relax and enjoy a program to the fullest when it is brought to you over your new radio. You will not have to strain to interpret the faulty reproduction of a note, an unexpected change in volume.

Pride

You will be pleased with the attractiveness a beautiful new set will add to your home. You will take pride in its perfect performance and modern beauty.

A Portable Radio

Saves Space

You can add space to your room by putting a portable radio on a shelf, side table, or recess. It will give you fine service without sacrifice of a room's spaciousness.

Serves Individuals

No longer need you, or anyone else in your family, forego his favorite program because of the will of the majority. The majority can listen to a large radio, while the individual listens to the portable one in another room.

Goes Outdoors

Days that you spend outdoors will be made more pleasant with a small radio, which can be carried to porch or garden.

Sings You to Sleep

You can turn those wakeful hours from annoyance to enjoyment with a portable radio placed near your bed.

Serves as a Standby

When the room with the large set is occupied, or when two groups of people are in the house, neither need be discommoded, when you have a radio for each.

An Auto Radio

Travels with You

Everywhere you go, your automobile radio travels with you. You need not give it a thought until you want a program. Tucked unobtrusively out of the way, it awaits your bidding.

Banishes Lonesomeness

Drives that you once dreaded to take alone will become a pleasure with a radio.

Keeps up Spirits

Long drives which once made you sluggish and sleepy will seem short when your auto radio entertains you. It will keep your mind stimulated, may prevent an accident due to sluggishness or sleepiness.

Makes Countrysides Colorful

Vistas and favorite places on familiar drives will seem more beautiful and enjoyable when encountered with the musical background of your auto radio.

Makes Living Fuller

You can get the jump on time's demands with an auto radio. Programs that you previously have not had time to hear will be brought to you, adding to your education and entertainment, in the moments that were once wasted.

A Phonograph

Obeys Your Wish

How often you have wished that at a certain time you could hear your favorite tune. Your phonograph will let you do just that. It is obedient to your command.

Makes You the M.C.

With a phonograph, you can be the master of ceremonies. You may select an entire program in advance. Play it and enjoy it, just as you like it played.

Assembles the Masters

The great artists, the popular favorites, your special preferences can be collected and saved on records. Throughout the years they will be ready for your ear.

Is Always Ready

You will never have to wait for your phonograph. Its time is your time. Your bidding is its act. It will play what you want, when you want it.

An Organ

The beauty and grandeur of the most versatile, to some musicians the greatest, of man's musical instruments is yours with an electric organ. Music that only a few years ago could be created only in the largest theaters and cathedrals now can be played in your own home and almost no space is required.

A Home Workshop

Is a Fascinating Hobby

Many are the workmen, artists, professionals—men and women from all walks of life—that turn to a home workshop for fascinating, useful recreation. You will enjoy the thrill of actually making things that you have long wished you could.

Can Be Profitable

Many people find fun and profit in making things for the home, creating usefulness and beauty, and at the same time saving money. Bowls, buttons, ornaments, furniture, toys, kitchen utensils—these are but a few of the things you can make with simple home equipment.

Mr. and Mrs. Homeowner

Air Conditioning

will bring to your home:

Weather As You Like It

Because it makes weather to your own liking, and maintains it that way inside your house, it makes you independent of storms, heat, cold, or sticky humidity. Makes your hot summers livable, cold dry winters endurable. Even temperatures throughout the house.

Comfort and Peace of Mind

Maintaining itself, there is no bother or fuss or attention required. You have comfort and peace of mind in its assured dependability. Outside noises are kept outside.

Better Health

Since it filters from the air all dirt and with it all germs hidden in dirt, it protects the health of your family. Sufferers from asthma and hay fever are often brought relief not otherwise possible, since pollens causing these troubles are removed from the air. Refreshing sleep all summer.

Cleanliness that Pays for the Cost

In the long run, absence of dirt, dust, together with the correct humidity and temperature will preserve furnishings, reduce housework, save on painting and decorating, thus pay for itself.

Electric Heat

will

Tend itself

Without the need for any attention from you electric air heaters installed in your home will automatically look after themselves. Thermostats and time clock will do all the watching for you, have the bedroom warm for you when you arise, keep the temperature just right no matter what the weather does outdoors.

Be Cleaner

than any other type of fuel you can use. It is entirely heat, and hence has no smoke, soot, ashes, or fumes. It is the most efficient heat for the same reason, for every bit of it is pure heat.

Give you individual room control

In spring or fall, when the entire heating plant need not be started, electric heaters will provide individual control. You can heat any room separately or to any preferred temperature. Thus if some one in the family needs more or less heat, individual tastes can be gratified. This is ideal where there are aged or invalids in the family.

Bathroom Heaters

will

Supplement your heating system

Because baths are taken unclothed the bathroom needs heat more often than the house generally. With a bathroom heater this cozy warmth can be had at any time, night or day, entirely independent of the heating plant.

Pay for itself in construction

Costing less than a furnace duct in a new home, the bathroom heater thus pays for itself in first cost. Operating but 50 to 80 hours a year its operating cost is low, regardless of rates. Its long life is another decided cost asset for it will last as long as the building.

Provide just the needed warmth

As the health room of the house, this refinement is no longer a luxury but an essential. It is safe and cozy, and as clean as a bathroom always should be.

Auxillary Heaters

bring you

Quick heat whenever wanted—

Tucked away in a closet until wanted, the auxiliary heater is right on the job to throw out heat when, where and however wanted. Between seasons, for a cold morning or evening, or in the bathroom, breakfast room, sewing room, on the floor while baby plays, it is ideal. Helps dry hair, warm or dry clothes.

So much safer and cleaner—

Does not take anything from the air in order to create heat since it all comes along the wire. Makes no soot, ashes, flame or fumes. This means a clean house, less bother, peace of mind.

Special extra values—

If it is fan type it can be used as a fan alone in summer to create a gentle circulation of air. If the spot type it directs the heat, and often is good for asthmatics, directed over them while they sleep. Or it can be used as a heat lamp for sore muscles or bones—the infra-red heat rays penetrate deeply.

Fans, Attic Ventilators,

are

Health bringers—

Health authorities agree that air kept in circulation is healthier than still air, even if it is not changed. Hence a fan is an all-year necessity, especially needed to circulate air in the closely shut-in winter household. It thus prevents headaches, illness.

A heat relief—

Prevents prostration in excessive heat. Induces sleep at night. Attic ventilators draw in cooler outside air and remove the hot layer of air caged in the attic, which keeps the house hot all night.

Unobtrusive, quiet—

New fans are nicer to look at, quieter in operation, in fact in every way more inconspicuous. Operating cost is very low. They remove odors and smoke, which means a clean smelling house.

Oil, or Coal Burners

will

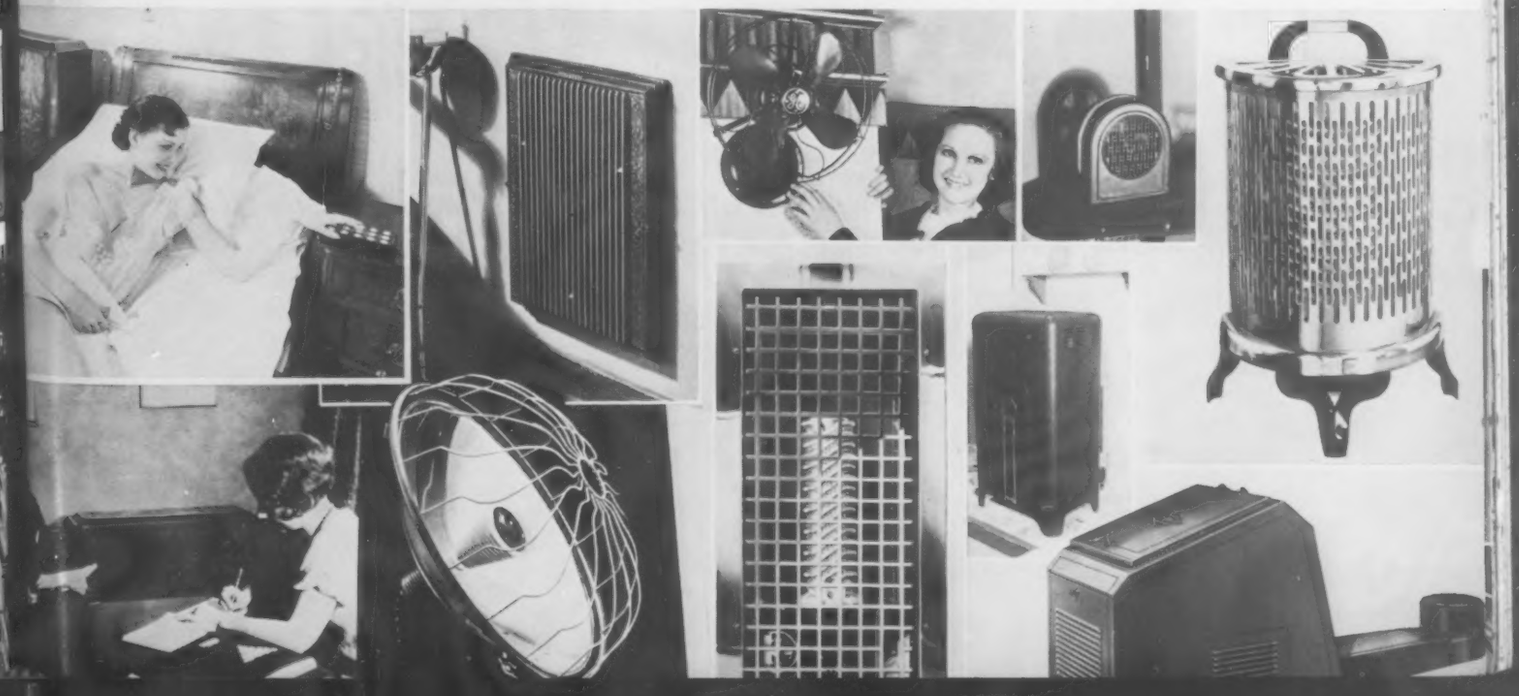
Tend the furnace for you

No more need to stoke coal into the furnace, bank up the fires, tend the furnace throughout the long cold winter with an automatic coal or oil burner. Thermostats up in the living rooms regulate the fuel, use it more sparingly than a person would, and maintain the temperature just right.

Keep the place cleaner

Burning far more efficiently than ordinary furnaces, the oil and coal burners leave no ashes, soot or mess in the basement. The basement can be used as a recreation room and kept tidy. Coal dust does not sift up into the house or get tracked in. *(In the Rocky Mountain region cheap coal and lack of natural gas make coal an economical fuel and coal burners a good sales item for dealers. In other regions where temperatures are very low, the oil burner finds a ready market. Sell them in terms of comfort and economy.*

HEATING and Air Conditioning



The Health Room

(Recently advocated is the substitution of the term health room for bathroom with the creation of a room in which standard bathroom functional equipment is placed out of sight, and bathroom space used to create an attractive, restful location for exercise, health measures and relaxation.

Besides offering the inducement of additional, utilitarian attractiveness for the modern home, it opens a channel for step by step selling of beauty and health appliances toward the objective of a completely furnished electrical health room.

Beware of false claims in all health device selling. Physicians recommend radiating and heating devices for many ailments, but an electrical salesman is not a physician. Sell these devices on their fundamental contributions to health and comfort. They offer the customer positive services, which he wants and will buy if you explain them to him. Sell on these, and let the physician do the prescribing.)

Exercise

You may include gymnastic equipment in your health room. Sensibly designed for usefulness, it will be a place for you to do the beneficial exercising you've been planning, but have not done because of lack of room.

Relax

How often have you wanted to lie down or relax, but have not because there was no place or because someone would ask you if you were sick. Your health room will be a refuge for short, enervating rest periods.

Energize

Equipped with sun lamps, your health room will be a stimulating place to rest. Even on winter days you may absorb the healthfulness of summer sunshine.

Reduce

For those of your family who are keeping down their weight, the health room is an ideal place for exercise, and for the location of massagers and scales.

Dress

You will appreciate the attractive convenience of the health room in dressing after a shower or bath, or when the house is crowded and you need a place for someone to change their clothes.

Beautify

For the woman, the health room is most convenient as a place to locate a dressing table, hairdryer and beauty equipment for which it has been difficult to find space.

A Sun Lamp

(Infra-red heat radiations, ultra violet waves and visible light are produced by sun lamps, singly or in combination. The advantages of all three are included below. It is ultra violet that produces the sunshine vitamin D, infra-red the penetrating heat. The advantages growing from but one or the other of these emanations are obvious.)

will:

Relieve Aches

Penetrating heat will stimulate the blood circulation, giving you relief from aches and pains which have persisted because a sluggish circulation could not of itself combat them.

Relax Muscles

Fatigue from long hours of remaining tense is relieved when you relax under your sunlamp, letting the heat stimulate you and absorbing its healthful rays.

Perform Faithfully

Day after day your sun lamp will generate artificial sunlight at the flick of a switch. It will supply these radiations throughout the winter, when the sun gives you but 4 per cent of its summer radiation.

Preserve Your Health

Your lamp will reproduce sunlight. Sunshine has been found invaluable in building up bodily reserve, strengthening children's bones and teeth. Sunshine gives you Vitamin D.

Dry Your Hair

The heat radiations of your sun lamp will afford a quick, safe, beneficial way of drying your hair. No longer need you resort to harmful rubbing or dependence on the weather.

Act as a Heater

You can use your heat lamp to warm a small space, and accomplish this at the same time you are enjoying its beneficial rays.

Meet Emergencies

When it is necessary quickly to warm the air over a patient's bed, or to augment the stimulation of circulation, you will be thankful that you own a heat lamp.

Guard Your Complexion

Skin pigmentation, which gives you that healthy sun-tanned glow, and which allows your skin to absorb beneficial ultra-violet rays, is developed by your sun lamp.

A Heat Bag will serve you:

Safely

Heat pads are thermostatically protected. They will not overheat. They will develop a constant, soothing temperature.

Continuously

Your heat pad will remain warm, at constant temperature indefinitely. You will not be inconvenienced by its cooling off when most wanted.

Conveniently

A switch will operate your heat pad. You are free from fuss and bother. It is soft and pliable and can be applied exactly where and how you want it.

Quickly

In emergencies, or for warming a bed or baby's crib, you will be grateful for the convenient, fast action of a heating pad.

Versatility

You will find your heating pad useful in a variety of applications. With a rubber cover it can be used for the application of hot compresses, which will stay hot.

Miscellaneous

Beauty aids will save you time, reduce cosmetic costs, protect your complexion, allow you to devote more attention to grooming, be invaluable for quick freshening, tone your skin, give you zest.

Razors and sharpeners will prevent inconvenience, pay for themselves in blade purchase savings—the razor will save on shaving cream, protect your skin, let you shave oftener, eliminate muss, save time once needed to undress for shaving.

Tumbler water heaters will save time, quickly produce hot water in the quantity wanted, thus preventing excess heating, and so saving you money. They will save steps and inconvenience, be invaluable in caring for the sick.

A hairgrower will stimulate the deep scalp circulatory system, energize inactive hair follicles, increase the growth of hair. (This device, illustrated, was recently announced. Promotion awaits completion of 1,000 tests. First 500 indicated 95 per cent positive results.)

Mrs. Prospect . . . . . Correct Lighting . . . . will bring to your home:

HOME LIGHTING + +

Comfort to your eyes

Originally designed for West Point students by the eminent Illuminating Engineering Society this I.E.S. tag is your guarantee of eye comfort for reading, sewing, or other close work on any lamp.

Brighter, cheerier rooms

Soft, shadowless and glareless illumination brings out all the natural colors of your drapes and furnishings. Your clothes will look their best, and your complexion most charming under its pleasant glow.

Pin-it-up Lamps

Introduce a clever note

in home decoration. You will find them handy to pin up anywhere, good looking, and good seeing. They brighten up corners, make a charming note over a couch or writing desk. The I.E.S. study lamp type make the only ideal bed reading light that is kind to the eyes, that not even your oculist would criticise you for using when you enjoy reading abed.

Kitchen Units

Make housekeeping easier

It makes all the difference in the world to you while getting dinner ready, washing dishes, putting up fruit, or just mopping the kitchen or bathroom floor, to be able to see when you get it done to suit you.

Are no trick to install

There used to be some bother to installing a new unit, but now all you need to do is screw this unit into the socket. It does things to your bathroom too. Your husband will enjoy its light to shave by. You can see when Junior's ears are really washed.

To the Dealer

and Salesman

You will sell more lamps and earn more profits if you sell the idea of *seeing* instead of fixtures or lamps. Once you convince a customer of the *need* for good light, you begin a long chain of future sales of good lighting units for every room of the house. Light is not sufficient unto itself—it needs to be controlled by good equipment. Each I.E.S. lamp sold suggests by the contrast it makes with previous lighting the need for more I.E.S. lamps, kitchen and bathroom units, shades, conversion devices to change existing bare lamp fixtures into good lighting means. Likewise, one portable will not light an entire room. It does a fine job for a small area and gives good general lighting.

A fitting room for lamps where customers may see a lamp in home setting, try it before buying has been found a big sales aid

Now there are I.E.S. lamps of many more styles. Also new I.E.S. end-table lamps. Likewise clever adaptors such as that at right, to convert bare lamp lighting to shaded, glareless illumination. Pin-it-up lamps can be displayed effectively on a stand like that at right. A variety of shades and shields often prove to be fast selling items

Easier to sell with the I.E.S. tag because of the certification of both seeing value and quality

Take Advantage—

of the tremendous push being given to lighting by this Fall's extensive national advertising campaign, by utility advertising and sales effort, by lighting articles in so many women's magazines, by demonstrations at fairs and shows, by utility women home lighting advisors. The lamp styles available are more varied and numerous, the variety of fittings and devices more complete. Children are starting back to school. Days are growing dark earlier. Stores are using higher intensities and the whole level of lighting is moving upward. It is ideal for the sale of quality merchandise at good prices. You can give your customers more light for their money than ever in history.

Demonstrations—

Ask the utility or the lamp companies for lighting demonstrations in your store. Advertise these. Get your customers to come in and select the level of light their own eyes tell them they need. They will be surprised and you too in increased sales. Sell *up* on lighting, you will always be doing your customer a good turn in doing so.

Provide yourself with a sight meter. It is the best proof authority in the whole selling kit. Explain simply that light can be measured in foot candle units, just as temperature is in degrees, or length in feet. The sight meter is the yardstick of light. Use it to demonstrate the value of good lighting merchandise and sell up to better levels of seeing ability

SALES TALKS THAT

● EVERY alert dealer watches trends and seasons for selling advantages. Bill Smith is successful because he catches the season with the right merchandise. And now he knows that with short winter daylight hours, people need more light. Big national advertising programs point the way—it is going to be the greatest I.E.S. lamp year in history. With a well selected stock of floor, table, and pin-it-up lamps Bill, like any wise dealer, is ready. To bring customers to his merchandise, he has canvassed his entire customer list. He has sent each a letter inviting him or her to come in and see how eyes can be rested, nerves relieved, complexion enhanced and surroundings made more colorfully attractive with scientifically designed I.E.S. lamps. Mrs. Packard, a customer, has come in to see what the lamps look like—"just to shop around."

Selling an I.E.S. Lamp

Case History No. 22

Bill has greeted her cordially and taken her to a chair where she may be seated comfortably while he demonstrates the qualities of really good lighting.

●

MRS. PACKARD: "What you said in your letter about school starting reminded me that the children need a lamp to do their homework under. I'd like to look at your lamps."

BILL *(deciding to give her both barrels right at the start, so as to fix firmly the idea of eye comfort with an I.E.S. lamp)*: "It will be a real pleasure Mrs. Packard. It is always delightful to serve an intelligent and discriminating person like yourself who has a real interest in the welfare of her family. And it is doubly pleasing to show anyone an I.E.S. lamp because its use always brings them such eye comfort, so much healthier eyes, so much more enjoyment of life. Your children deserve the best light that science can provide these days. Do you know, although most of us were born with fine eyesight, by the time we've finished high school 25 per cent of us have developed eye defects that might have been avoided? Now we can't stop studying and reading and still keep up to date in these modern times—but we can help our eyes to see easily and comfortably with more correctly controlled light. Notice this lamp, Mrs. Packard, and this tag. It represents a lamp which has met the rigid standards that the Illuminating Engineering Society, a body of scientific men, has determined are necessary for study and close work."

MRS. PACKARD: "Yes, I've heard of them a good deal, but I'm not sure that they are just what I want. They do seem rather tall for a table lamp."

BILL: "Tall? Yes, I suppose all the shorter lamps we have been used to, those made over a vase or ornamental base, do make these seem taller and statelier. But that is just one of the 54 points of advantage which the Illuminating Engineers specified. You see, with this height, and the shape of this shade, the circle of light under the lamp to work in is much larger—so that all of the books and objects in the range of your work will be well illuminated. There is nothing that you or your children will have to strain their eyes—you know, reach out and squint—even momentarily, to see. And yet, with this bright, softly diffused area of light underneath, there is still plenty of light sent upward through the top here to the ceiling to give a general level of illumination throughout the room."

MRS. PACKARD: "I'm not sure that I like that. I rather prefer subdued lighting at night, with here and there a bright cone of light where one reads or sews. It seems more colorful, somehow, that way."

HERE Bill runs into the twin enemies of good lighting—individual taste, and romance. Notice how he gives them full credit, but shows the added advantages of good lighting.

BILL: "Yes, Mrs. Packard, I know how you feel—and it's natural that we feel that night brings quiet and a touch of romance in soft, fireside types of lighting. If there's no work to do, no sewing, or reading, or studying, there is a charm to sitting in semi-darkness. But today's tasks require

Sold APPLIANCES

such keenness of seeing, and so much more reading and use of the eyes. And when we're demanding so much of them, we must make the work of these eyes of ours as easy as possible, must we not?"

MRS. PACKARD: "Yes, that's true."

BILL: "Physicians and research men in the illumination laboratories have actually measured the amount of nervous energy people burn up in trying to see under various degrees of light, or I should say darkness. Did you know, Mrs. Packard, that they have found a way to measure light now, as we measure temperature in degrees, and distance in feet and inches?"

MRS. PACKARD: "Is that what those light-meters do? I've wondered about them. Do you have one here?"

BILL knows that a carpenter without a rule would not be more lost or ill at ease than a salesman of light without a sightmeter, and he has a sightmeter handy—which he brings out and demonstrates.

BILL: "Indeed, yes. It is the only sure way of knowing that there is enough light. Our eyes are such long suffering, uncomplaining things, that they suffer abuse for years without making an outcry or telling us they have insufficient light to see by. But with this little light—or sightmeter, we can determine whether there is enough light for the kind of seeing job that we ask them to do. Now you see with this lamp, you will have plenty of light for more than average seeing tasks—such as reading fine print, sewing on dark materials with a dark thread that matches, and for easy reading, and excellent light at all times." *(demonstrating with sightmeter. He also shows how much poorer is the light from an old type of lamp.)*

MRS. PACKARD: "That's interesting. Yet doesn't such a bright light cost a great deal to burn?"

BILL: Cost much to burn? That's an important point. I can see that you are a prudent judge of values, Mrs. Packard, and therefore you'll appreciate these facts. Naturally the cost of operating any device depends on how long it is used, and a number of similar factors such as length of the day, cloudiness and the like. But this lamp, at local rates, will cost so little to operate that it will be hardly noticed. On an average, in my home, I have estimated that lighting costs less than my cigarettes, and gives me many times more value. Considering the saving in vision, in eye examinations and glasses that result from the abuse of the eyes, the saving in nervous energy—which guarantee feeling better, working better, living better—even if it cost ten times as much, I'm sure it would be eminently worth while. Yet this lamp only costs about —— cents an hour to run. *(Any dealer can get this exact information to tell his customer from his utility.)* That's a real bargain in comfort, Mrs. Packard, and your children's eyes are certainly worth more than that. Suppose I send this lamp out today so that you may start immediately to feel the difference in comfort and enjoyment."

MRS. PACKARD *(looking at the price tag)*: "This is rather more than I had planned to pay for a lamp."

THE old price obstacle—test supreme of every salesman. But Bill knows he has advantages to far outweigh price so he repeats in a new way all of the good things the lamp will bring to her home rather than give an inch on price and sell a cheaper article.

BILL: "Yes, I can appreciate that it might be more than you planned to pay, Mrs. Packard. And I could show you cheaper lamps and let you buy just a makeshift for what this lamp will do, but that wouldn't be fair to you or your children's eyes. They are the most precious organs of the body and any loss of their efficiency not only necessitates expensive medical attention but takes considerable enjoyment away from life. On the other hand, with correct lighting provided by these I.E.S. lamps you will have protection against abuse of young eyes, you will have lighting that is conducive to healthful and sensible posture, you will make their visual tasks easier, speeding up their vision and ability to get from the text the information that they need in their school work. You, yourself, will get much pleasure from the lamp too. The general lighting it provides will bring out the colors and details of your home furnishings, your rooms will look brighter, more cheerful; the quality of light will add to the appearance of your guests and set you off as their hostess in the most charming background. Considering all of these things and the real quality that is built into this lamp to give years of service I am sure you will find that you have obtained more light and more value for your money with this I.E.S. lamp. I can have it delivered this afternoon. Will that be convenient?"

MRS. PACKARD: "Well, yes, about 4:30. I'll be home from my shopping then."

BILL: "Mrs. Packard, you show excellent judgment and I am sure you will take a real pride in this lamp from time to time. All of your friends will remark, just notice it, on the soft quality of the light that is so easy on the eyes. And you will know also that you are giving your children the best protection for the most precious possession they have."

NOTICE how Bill continues to sell the good features of the lighting even after he has the order. This reassures the customer that she has made a wise choice and helps her over the critical point of making a purchase.

CALIFORNIA OREGON POWER CO. * PORTLAND GENERAL ELECTRIC CO.
MOUNTAIN STATES POWER CO. * PUGET SOUND POWER & LIGHT CO.
PACIFIC POWER & LIGHT CO. * IDAHO POWER CO.
NORTHWESTERN ELECTRIC CO. * WASHINGTON WATER POWER CO.
UTAH POWER & LIGHT CO.

Mr. and Mrs. Customer,

Light for Beauty's Sake

will bring you:

An Outdoor Garden Living Room

All the care you put into making your garden lovely can bring you pleasure not only during the daylight hours but at night, when all the family is at home. A floodlight or two, placed under the eaves of the house will make your garden a living room for warm evenings. Or you can conceal the lighting unit as in this little bird house that harmonizes with the surroundings.

A Cozy Place for Informal Entertaining

Under a gay umbrella, with a graceful little lighting fixture that can be strapped to the pole, or used in a dozen other ways, a cozy area of color and light to play cards, or just sit and read.

Garden Beauty by Unusual and Dramatic Effects

By cleverly concealed lighting units, in the shaft of a bird bath stand, or under a lily pad, or in the swaying head of a cat-tail, or under the base of a flower pot, you can bring romantic and entrancing lighting effects to favored spots.

Holiday Cheer and Gayety

With Christmas tree lights and holiday decorative pieces you can spread cheer and goodwill, give your home the festive atmosphere that is so appropriate to the season. Outdoors as well as indoors the house can be made colorful.

Eerie and Startling Glow

Though lights are out, you can produce spectacular and unusual effects with fluorescent paints on walls, table cloths, decorative objects, shrines, or statuary, and invisible ultraviolet light makes them glow in unbelievably lovely colors.

Safety at Night

No need for you to stumble in the dark to find your way about if you use these tiny night lights. Some may just be plugged into an outlet and shed a low yet ample night light to see your way about. Ideal for the children's rooms, bathrooms, hallways, stairways, bedrooms. More elaborate wiring for emergency lighting provides bedside control of lighting. At some unusual sound, a push-button at the bed can be used to turn on emergency lights throughout the house.

Glowing Ornaments to Enhance the Room

Translucent lighted ornaments, such as statuary, glassware, decorative lamps, bring a note of color and life to your decorative scheme. Lighted panels, inbuilt panels in bookcases, or lumiline strips bring the use of both light and color to the making of unique interior decorative pictorial effects in a room. Charm and distinction come from this ornamental use of light.

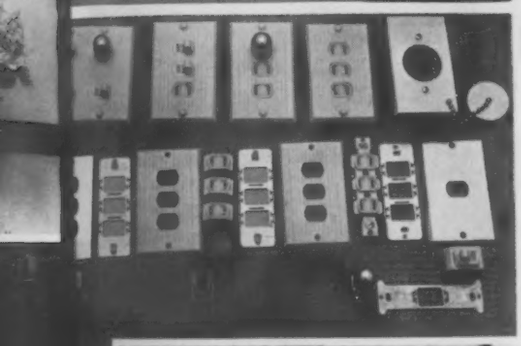
To Salesmen and Dealers . . .

You could sell twice as many appliances if your customers had plenty of convenient wall outlets in which to tap them. Thus wiring, like it or not, is the bottle neck of your business. Many of your complaints arise from the fact that the wiring is too meager—lamps burn yellow, appliances do not heat quickly enough, motors have no pep. The "traffic" on the home wiring system is too great to get electricity over it fast enough to do its job. So it is definitely to your interest to advise all customers to have more and better wiring installed. On this page will be found many hints as to how to suggest the peace of mind and the value that will come from having homes rewired.

¶ *In your own purchases be sure to insist on appliances equipped with cords carrying the safety label. It is your protection against the griefs of cord replacement and annoyed customers.*

Mr. and Mrs. Homeowner, have your Contractor install

More Convenient, Efficient Wiring



A Fuseless Panel
will
Never leave you in the dark

Fuses are safety valves. They never blow unless some dangerous condition heats them to the burning point. By burning first, they save your home from burning. It is wise never to replace fuses with any makeshift. Always have spare fuses on hand. Better yet, have installed a fuseless load center. It brings to one convenient location all your electrical mains. If some condition becomes dangerous, say a worn, broken cord, or too many appliances are on at once, flip switches turn themselves off and will not stay on again until you relieve the danger. Yet it takes only a flip to turn the lights back on when all is clear.

New Fittings
add
Beauty to convenience

Attractive switch plates and outlets harmonize with the woodwork or wall finishes of your home. Because they are so much more compact in modern design they take less space and still give you more places to plug in. Ingenious combinations of outlets and pilot lights, or switches and night lights, add further to your living comforts. Pilots remind you when the current is on. Night lights save you from fumbling in the dark for light switches. They can be installed at more convenient locations to suit your particular requirements.

Add-Here
brings
Inconspicuous extensions

Available in white, ivory, jade green and brown, this new flexible rubber material enables your contractor to extend outlets quickly and without dirt or muss so as to place them at far more convenient locations for your everyday use. Cemented to the wall, the electrician may later rearrange them for you if you need; they may be painted to match special wall finishes, and mounted at any height to suit your convenience. Walls are not cut nor woodwork marred.

Clever pendants

that can be used in so many attractive ways. Hung from the picture moulding they are ideal to serve electricity to bed lamps, boudoir lamps, a radio or appliances. Six tints of fabric covering provide a choice to match wall finishes and render them inconspicuous but decorative.

Metal Molding
gives
Permanent convenience with safety

Rugged because encased in steel, metal moldings stand harder usage. Trailing cords can be eliminated when new outlets are installed. Even new circuits, that mean greater efficiency and safety, can be run for you in this material. With all sorts of of elbows for turning corners, going over obstructions, its neat receptacles can be installed anywhere, painted to be inconspicuous. Heavy moldings for floors can withstand walking and furniture.

Plug-in Strip
provides
The ultimate in electric convenience

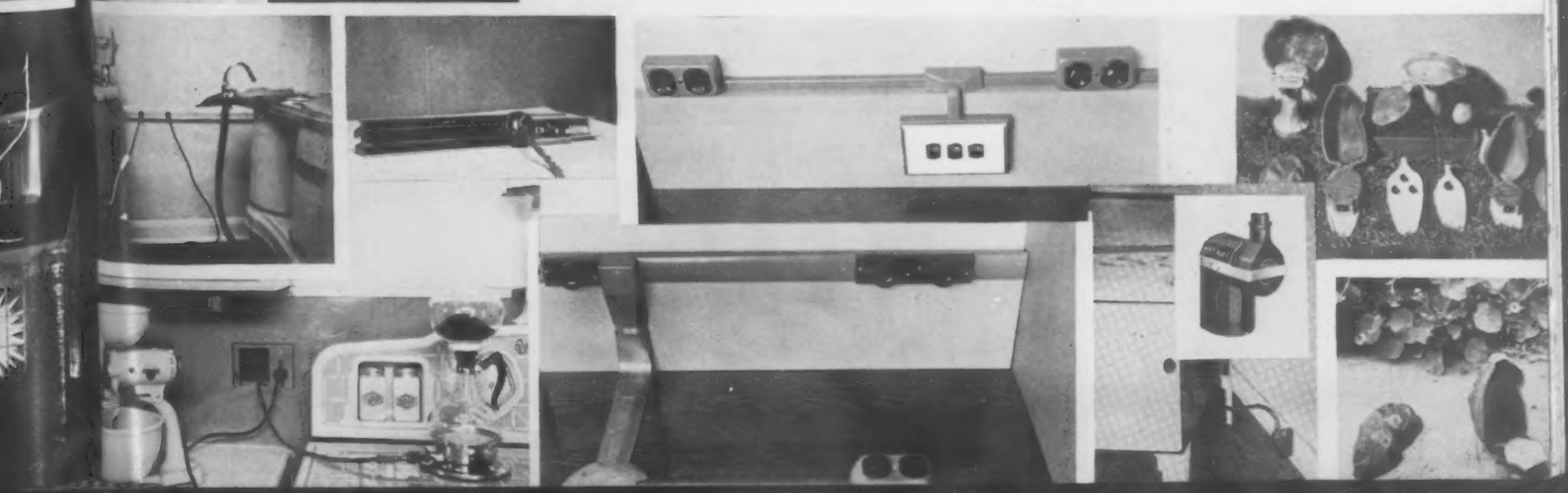
Run along the baseboard or the plate rail or at any convenient height it has an outlet every six inches—two inconspicuous slots for plugging in with appliances, etc. The outlets can be found in the dark, as two grooves aid in guiding the plug to the outlet. Painted to match the trim this makes a permanent installation that allows your furniture and appliances to be moved at will, with electricity available anywhere along the wall.

Other Devices

Outdoor outlets, in weatherproof boxes, others cleverly concealed in a mock toadstool or garden rocks, serve electricity for garden lighting and entertaining.

Range Plugs make an electric range portable and enable you to clean back of the range, move it easily, or allow it to be serviced from the back without costly disturbance of wiring.

Retrievable cord hangs up your cord for you inside the wall, immediately available when you want to use some appliance. It is out of sight until needed.



20 YEARS OF SPECIALIZATION
BACK OF THERMADOR'S GUARANTEE OF QUALITY AND PERFORMANCE

Thermador
ELECTRIC WATER HEATERS

Modern plant efficiency contributes to the efficiency of a modern product.

A corner of the Thermador Test and Experimental Laboratory.

Giant presses mould the Thermador square water heater cabinets.

Below: Testing heating elements for Thermador Room Heaters.

OFFER YOU THESE EXCLUSIVE FEATURES

1 MULTIBLADE HEATING UNIT—Extremely long life because of its construction and extra heating service.

2 THERMALERT THERMOSTAT — Automatic, accurate control of water temperatures. Inserted *in* the tank.

3 BY-PASS—Prevents accidental draining of water from tank in case of failure in water supply.

4 D-SKALE JET—Keeps heating units clean and prevents mixing of hot and cold water. Water force-sprayed through unit, thereby preventing collection of lime.

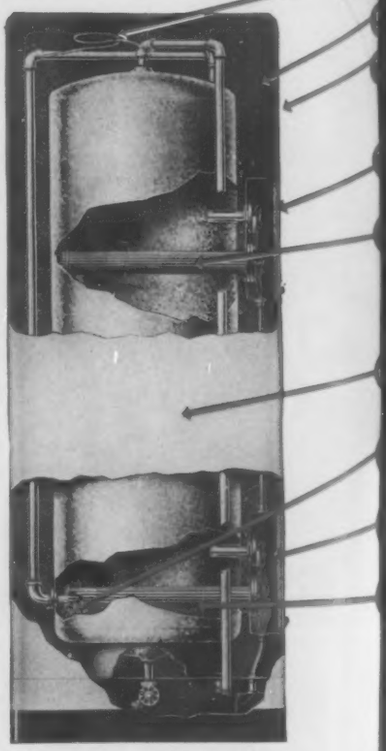
5 GRANKO INSULATION —Keeps down electric bills by keeping water hot longer.

6 THERMALUSTRE FINISH—Special porcelain-like finish that keeps its gleaming surface.

7 NO-RUST SHELL—Interior of shell is coated with special airplane rust resistant to assure longer life.

Thermador's seven exclusive features give the dealer and salesman seven definite talking points — common sense, practical advantages that SELL Thermador.

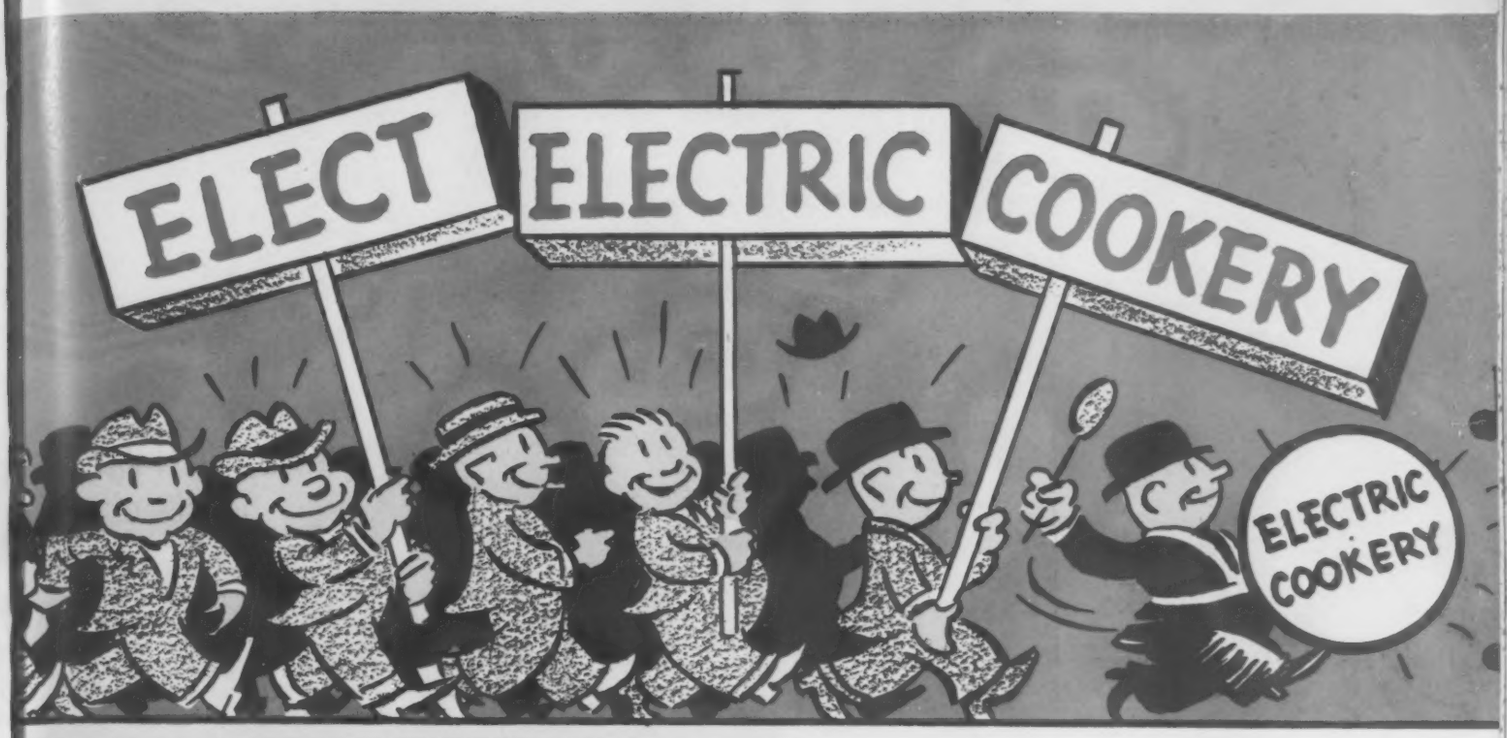
The name Thermador stands for leadership, too, in the field of electric room heaters—engineered to provide clean healthful warmth *in the living zone.* Investigate the Thermador line of both portable and wall heaters.



Cut-away of a Thermador Electric Water Heater, square model, indicating the seven exclusive features — *seven real selling points.*

THERMADOR ELECTRICAL MANUFACTURING CO.
2821 East Pico Blvd. • • • Los Angeles

Thermador



THE BELMONT
Hotpoint's popular style leader.

Ask the Hotpoint Representative About
SPECIAL MERCHANDISING OFFER
on The BELMONT

HOTPOINT'S Fall sales activity has met with enthusiastic response. The ELECT ELECTRIC COOKERY campaign and the timely way in which all promotion material, newspaper advertisements, direct mail, contest material, etc., have utilized the election theme, stirs the interest of employees and salesmen.

Now Hotpoint adds further stimulus to the ELECT ELECTRIC COOKERY campaign by announcing a special merchandising offer on the BELMONT Range.

Get in touch with the Hotpoint representative in your district at once. Ask him for full information. See how readily the ELECT ELECTRIC COOKERY campaign material can be adapted to your individual needs.

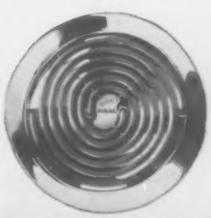
Now is the time to get a real sales activity under way for Fall. Ask for full details today.

EDISON GENERAL ELECTRIC APPLIANCE CO., INC.
5612 West Taylor Street, Chicago, Illinois

HOTPOINT CHRISTMAS CAMPAIGN

Another of the famous "What Mother Really Wants" sales activities will be announced in the October issue. Watch for it.

Hotpoint's Hi-speed heating unit, is sealed in inconel metal. Watch the SATURDAY EVENING POST for the dramatic story of Calrod's speed, durability, and long life, which is being told to millions of electric range prospects.



ELECTRIC Hotpoint RANGES

WATER HEATERS

The Apex Big 3 Sales Plan

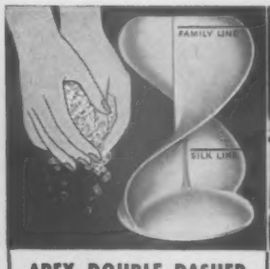
IS SELLING 3 out of 4

THAT ENTER THE STORES OF APEX DEALERS

Increase Washer Sales with APEX

Every Sale You Lose is a Profit Lost!

IT costs you a definite amount of money to have a person enter your store. If a sale is made, a profit is made—but when the prospect leaves without buying a certain loss is the result. • The Apex Big 3 Sales Plan is actually increasing sales for Apex dealers, actually selling 3 out of 4 prospects who visit their stores. The plan is simple, easy to operate, yet most effective and should be used by you. • If you are not using the Apex plan and enjoying Apex profits, then write at once for your copy and full line appliance catalog. You'll be pleased with the modern appliance styling, the attractive prices and liberal discounts.



APEX DOUBLE DASHER

APEX PRESSURE SELECTOR

APEX MODERN STYLE

Backed by Resear

Apex cleaner washers, ironer and refrigerato are backed b scientific resear and 23 years manufacturing e perience . . . yo assurance of p fect satisfactio

APEX ROTAREX MANUFACTURING CO., OAKLAND, CALIF.
Subsidiary of **APEX ELECTRICAL MANUFACTURING CO.**
CLEVELAND, OHIO

Apex

OVER 2½ MILLION CLEANERS · WASHERS · IRONERS & REFRIGERATORS IN USE

MULTI-BREAKER LOAD CENTER

A new compact residence multi-breaker load center eliminating fuses and service interruptions. Includes combination circuit for range and water heater. Price comparable to main switch and fuse centers. Easy to install. Full overload protection.

PANELETTE

Flush and surface mounting type fuse cabinet. Provision in trim of panel for Despard or Bryant wiring devices. Space for bell and/or furnace transformer mounting.

RESIDENCE PANEL

The famous All-N-One cabinet. With or without bell and/or furnace transformer space; also dead front fuse break for control of electric range and water heater circuits. Provision for Despard or Bryant wiring devices.

Buyer's Guide

SQUARE D electrical control anticipates every requirement of consumer, dealer and contractor

OUTDOOR SAFETY SWITCH

Weatherproof type for every outdoor lighting service. No protective enclosure required. Removable hinged cover for easy wiring. Heavy duty galvanized steel box, aluminum painted. Drip hole in bottom.

The popularity of the Square D line of safety switches and panels reflects the foresight of Square D design and engineering. The convenience and the economy of these electrical products is appealing to the consumer. The manner in which they anticipate future electrical loads is satisfying to the utility. The ease and facility with which they may be installed and wired impresses the contractor.

Consumers, dealers and contractors alike look to the Square D trademark as a buyers' guide and guarantee of quality, long life and trouble-free operation.

Square D equipment includes a complete line of devices for the control of electrical appliances, ranges, water heaters, etc.

CALL IN A SQUARE D MAN

TYPE D SAFETY SWITCH

A competitively priced service entrance safety switch. Rugged construction. For surface or semi-flush mounting—side operated—slow make, slow break. Full range in sizes and capacities.

CALIFORNIA'S *Electrical Age* HAS JUST BEGUN

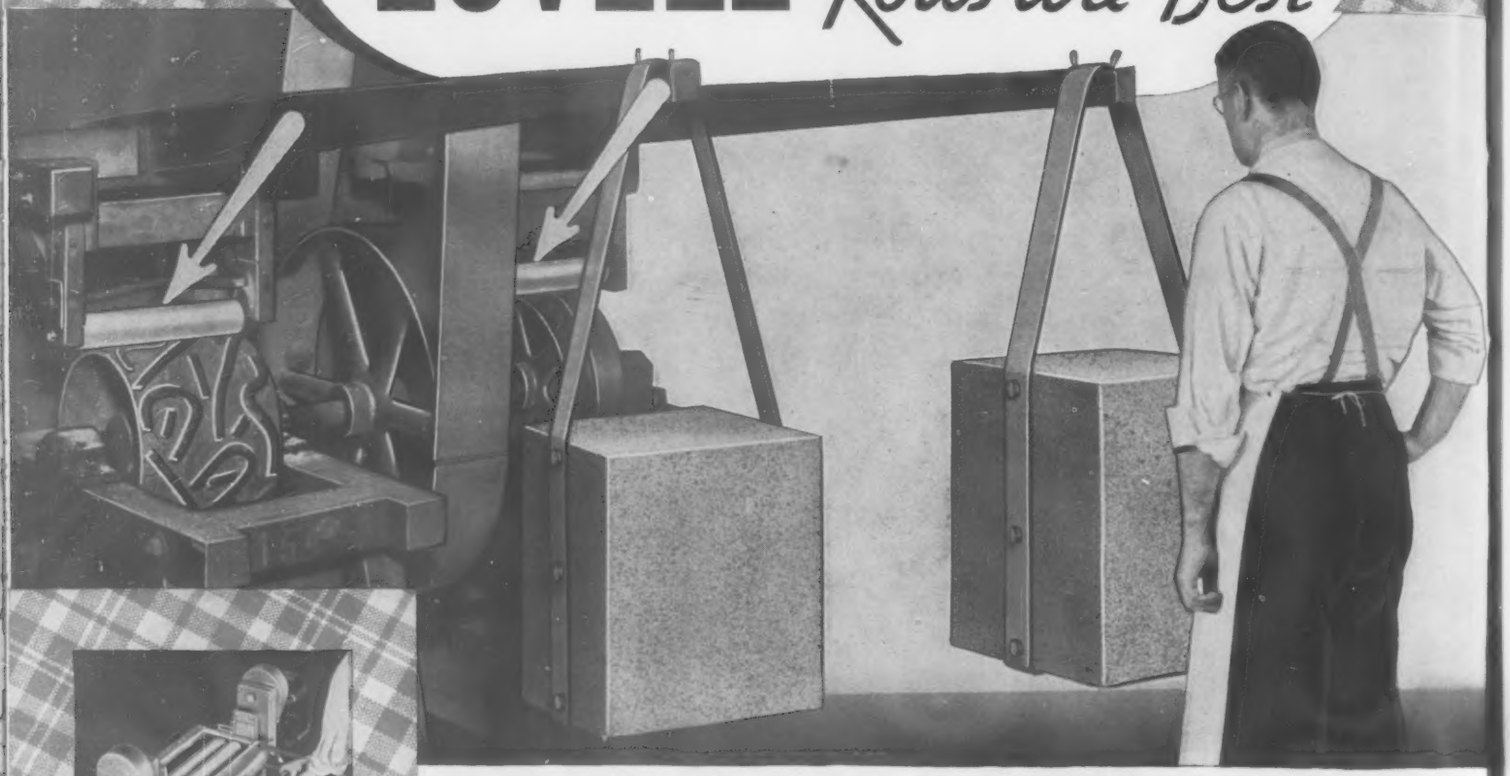
SQUARE D COMPANY

LOS ANGELES - DETROIT - MILWAUKEE

SQUARE D COMPANY CANADA LTD. TORONTO, ONTARIO

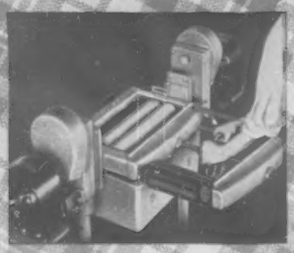
JUST TO PROVE THAT

LOVELL *Rolls are Best*



Left: The Abrasion Test

Right: Roll Shaft Test



Reverse Action Test for Resistance to Wear

Rubber Displaces to Accept Heaviest Load

The Supreme Test—Actual Usage Over Long Period of Years

HOUR AFTER HOUR Lovell rolls ride under destructive pressure over ridges of hardened steel and pulleys that distort the shaft—*just to prove that Lovell rolls resist abrasions—just to prove that Lovell shafts will not break.*

Hour after hour Lovell rolls, turning in opposite directions against rolls of every make, eventually wear the inferior roll down to the bare steel shaft—*just to prove that Lovell rolls wear longer.*

Hour after hour inch thick boards are fed through a Lovell wringer—*just to prove that the rubber will accept with ease the heaviest, thickest garments.*

Therefore, when Lovell, maker of rolls for more than 40 years, and the *only* wringer manufacturer in the world that builds its own rolls, says "Lovell Rolls Are Best," you can be sure that this claim has been proved by countless tests.

LOVELL MANUFACTURING CO.
ERIE, PA.

How to wash blankets by using only the wringer and other unique information on home laundering are contained in this 48-page illustrated booklet. Send post-card for free copy.

APEX ROTAREX MFG. CO. • 1420 45th Street, Oakland, California
Pacific Coast and Rocky Mountain distributors for Lovell replacement wringer rolls

LOVELL PRESSURE CLEANSER

Where severe water conditions affect SALES—Fowler Electric Tanks solve the PROBLEM

● **HERE'S an electric water heater that builds load and goodwill regardless of water conditions. The Fowler Electric Tank is fully lined with vitrous porcelain enamel. It is as impervious to corrosion or rust as a water glass!**

And the price of this heater attracts customers.

Every detail on the Fowler Tank is engineered to give customer satisfaction—to build good will—to endure. "Clamp on" heating units apply low intensity heat over a wide area, preventing "liming up." Heavy composition insulation holds radiation to a minimum.

Fowler Electric Tanks will eliminate service calls and give your customers the finest service at lowest cost. After more than 20 years of efficient service, thousands of Fowler Tanks are still in operation. THESE UNITS STAY IN OPERATION!

Look into these profit making heaters. Investigate their design, including the new fool proof adjustable thermostat which can be easily adjusted at any time by the customer.

FOWLER MANUFACTURING CO.
1203 S.E. 8th Ave. **Portland, Oregon**

Unusual Sales Stimulus offered by Fowler's Adjustable Thermostat

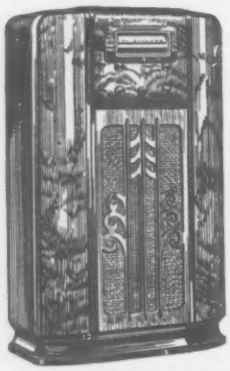
Your customers will appreciate the adjustable thermostat now available only on the Fowler Electric Tanks. This thermostat enables the user to select at will the water temperature desired. Hot water, of any temperature between 120 deg. F. to 170 deg. F. is provided automatically by a mere hand adjustment of the thermostat. No tools needed AND THE UTILITY SAVES THE COST OF A SERVICE CALL. This thermostat is *guaranteed* FOOL PROOF — ACCURATE — SAFE. It assures customer satisfaction without utility service costs.

Fowler Electric Tank

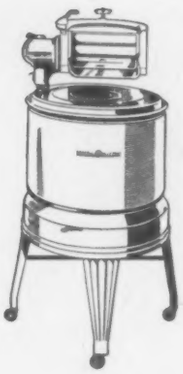
LONG LIFE LOW COST

GENERAL ELECTRIC

APPLIANCES



ARE EASY TO SELL!



General Electric Appliances are easy to sell because their public acceptance is based on a reputation for quality, long life, and service. The line is complete and the sale of any single product automatically opens the door to new and added profits among the many others bearing this famous name.

TO CASH-IN MEANS HAVING STOCKS AVAILABLE!

GENERAL ELECTRIC
SUPPLY CORPORATION

MAKES IT EASY FOR DEALERS TO BUY!

Located in all principal cities and towns where logical distributing points are necessary for the easy operation of each dealer's business, the General Electric Supply Corporation makes it easy for dealers to buy. Adequate and complete stocks of appliances and supplies suitable to the merchandising needs of each marketing area are found at these well located warehouses and branches.

GENERAL ELECTRIC
SUPPLY CORPORATION

Offices and Branches Western Region

SAN FRANCISCO • OAKLAND • SACRAMENTO • FRESNO • LOS ANGELES • LONG BEACH • SAN DIEGO
PHOENIX • EL PASO • PORTLAND • SPOKANE • SEATTLE • DENVER • SALT LAKE • BOISE • BUTTE • BILLINGS

A Smashing new Fall Sales Campaign on GENERAL ELECTRIC RANGES!

Quick Facts!

- ★ A complete 5 week's sales campaign in a package.
- ★ Combines TIMED prospect mailings with TIMED personal contacts.
- ★ Contents of each package aimed at 50 range prospects.
- ★ Daily card index directs work automatically. No bothersome details. No wasted time.
- ★ Cards tell everything to do each day and how to do it.
- ★ Each package includes 50 sets (250 pieces) of hard-hitting mail literature, imprinted with salesman's or dealer's name.

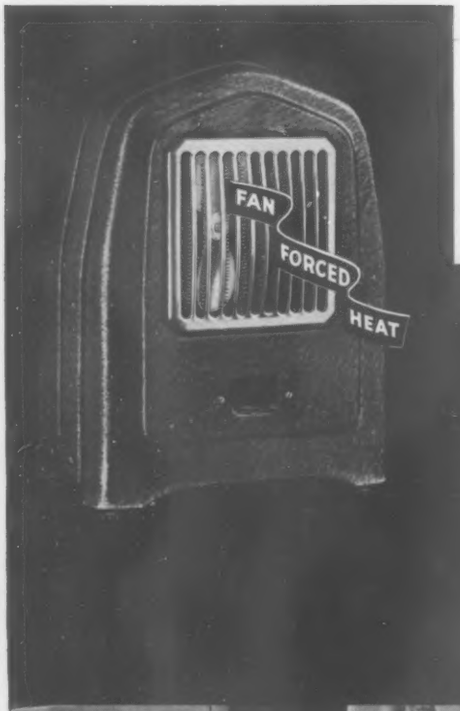
G-E RANGER—the Automatic Order Taker

● Never before have you seen anything like the new G-E Ranger. It's the simplest, easiest, most effective plan for developing electric range sales ever organized. Based on the law of averages, it cannot fail when properly worked. It's automatic in operation. No guess work. Everything is planned in advance, every movement timed.

Put the Ranger to work for you this Fall—*right now*—and you will be amazed at the way it produces range business that heretofore you never thought existed! See your G-E Home Appliance Distributor at once or write or wire direct for complete details. General Electric Company, Appliance and Merchandise Division, Section RC9, Nela Park, Cleveland, Ohio.

GENERAL ELECTRIC

Automatic Electric Ranges



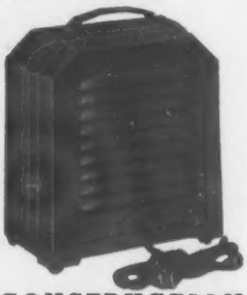
INTRODUCE YOUR CUSTOMERS TO

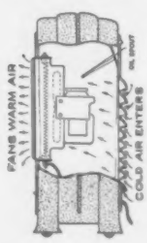
ARVIN

Fan-Forced ELECTRIC HEATERS

AND HELP YOURSELF TO EXTRA PROFITS!

● Your customers will find a new friend—and a warm one—in these amazingly efficient Arvin Fan-Forced Electric Heaters . . . you'll find new profits. A demonstration is always the best possible introduction. Every home needs Arvin's gentle tropical breeze—to take the before-breakfast chill from bedroom or bath—as extra warmth when the home heating plant is operating at a minimum—for baby's bath and in the nursery—to counteract drafts—to dry hair quickly—for radiant warmth plus healthful circulation . . . that extra comfort often wished for and so easy to have with an Arvin. A five-year sales record proves Arvins are fast-selling and profitable. See an Arvin jobber right away for a first order.





STURDY, LASTING CONSTRUCTION

Fan motor is induction type. No radio interference. No attention needed, except few drops of oil two or three times a year. Fan draws air in through rear louvres, past nichrome helical type heating coil, out through front chromium grill. Operates on 110-125 volt AC, 50 to 60 cycles. Heavy gauge steel cabinet. Permanent green morocco finish. Approved by Good Housekeeping Institute and Underwriters' Laboratories.

Tested and Approved — Good Housekeeping Institute

NOBLITT-SPARKS INDUSTRIES, Inc., Columbus, Ind.:
Please send full information on Arvin Fan-Forced Electric Heaters.
I am a ( ) Jobber ( ) Dealer.

FIRM NAME.....
PLEASE PRINT PLAINLY

ADDRESS.....

3-Zone EASY Washers score National sweep!

NEW WASHING METHOD CONQUERS LOW AND MEDIUM PRICE FIELD IN FEW SHORT MONTHS

MODEL 2B—A big, fast EASY in the staple price line. Made better than ever with exclusive EASY Turbolator washing action. New sturdy "*Safeguard*" wringer with covered drainboard increases personal safety. Super-safety roll-stop control. New chrome tension adjuster. Self reversing drainboard. Electric Pump available.

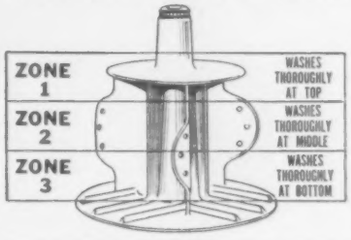
GASOLINE MOTORS FOR HOMES WITHOUT ELECTRICITY

For the family without electricity. EASY Turbolator models 2B, 3B, 4B and 5B are all available with 4 cycle Briggs-Stratton gasoline motors in a price range that means more sales and profits for you.

Over 100,000 already in users' homes

Now—for the first time—a washer that really washes *all* the clothes *all* the time yet retails at prices competitive to ordinary underwater impeller methods. A washer that is new and different yet already *proved* spectacularly *better* by exhaustive laboratory tests, by actual competitive demonstration, by sale and use in over 100,000 homes.

WASHES ALL THE CLOTHES ALL THE TIME



No complicated explanation is necessary. Just by looking at this simple diagram anyone can quickly understand that with the 3-zone action of EASY Turbolator, no clothes are left floating on top or only half-washed in the middle.

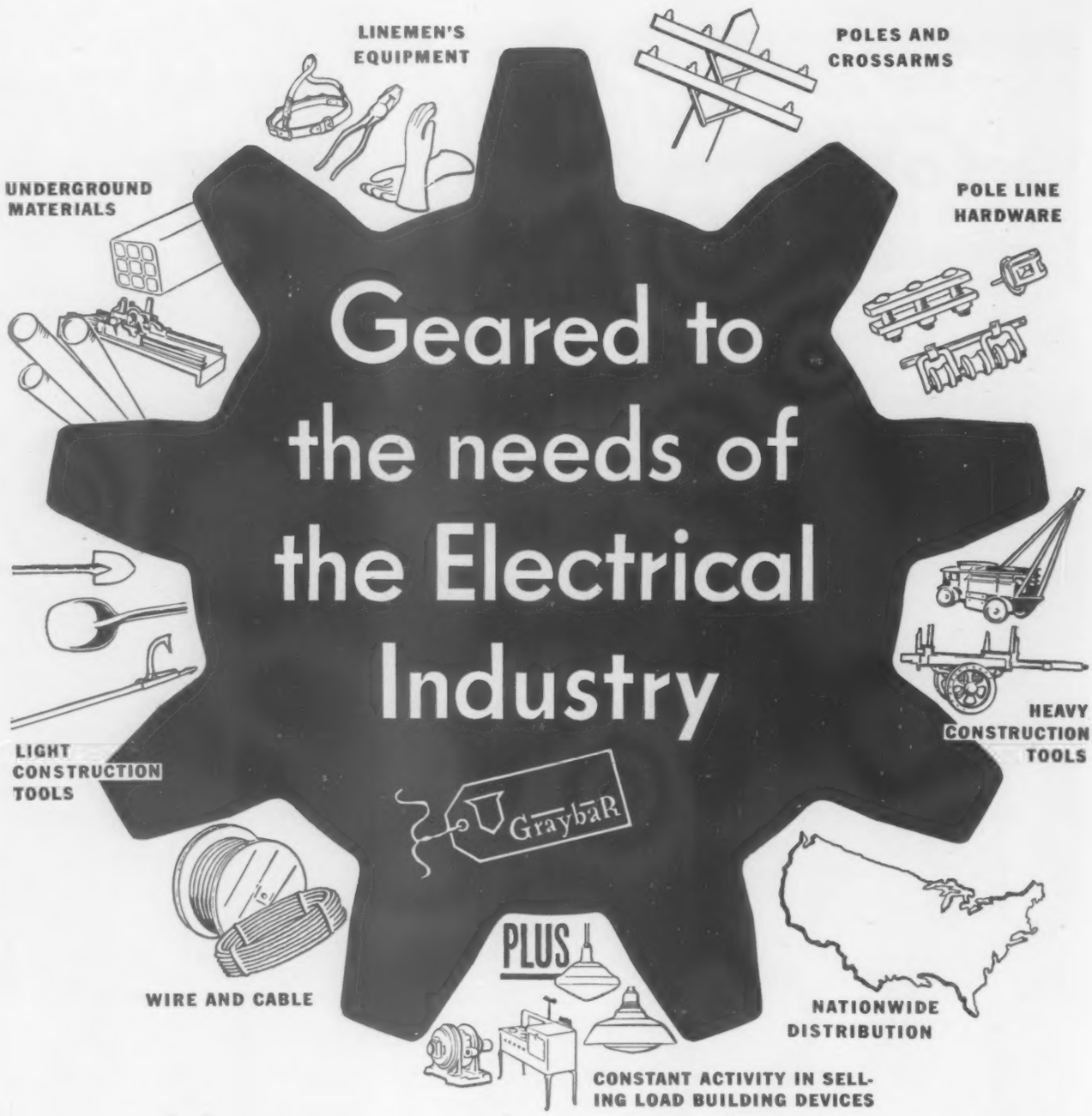
MODEL 5B

The lowest priced EASY washer—designed for simple efficiency and modern beauty. Exceptionally large tub. TURBOLATOR 3-Zone action. *Automatic Wringer* with safety release, self-reversing drainboard and semi-soft balloon-type rolls.

MODEL 4D

EASY Turbolator action combined with exclusive EASY Damp Dryer water extractor. Assures personal safety, saves washing, ironing, mending time and labor and time on the line. Drys blankets, pillows. EASY electric pump included.

WASHER DEALERS: Investigate the patented EASY invention that gives you such an advantage over competitors. Study the extra-profit EASY offers. Complete sales helps. Ask for 1937 EASY sales plan book . . . write Easy Washing Machine Corp., Syracuse, N. Y.



GRAYBAR is uniquely equipped to serve you completely, conveniently, and intelligently. Its 60,000 item service of supply is geared to meet the specialized needs of all branches of the electrical industry . . . Starting in 1869 at the very beginning of electrical development in America, Graybar's experience has kept pace with the growth of the industry. Today, Graybar brings you what you want, when and where you want it. And backs each and every electrical product with a 67 year reputation for quality.

OFFICES IN 79 PRINCIPAL CITIES: EXECUTIVE OFFICES, GRAYBAR BUILDING, N. Y.

ADJUSTABLE WUELKER REFLECTORS

ADJUS-TO-ANGLE REFLECTOR

Patent No. 1,697,216 Other Patents Pending

HAS NO COMPETITOR

for . . .

BIGGER Profits EASIER Sales

— MODERNIZED ANGLES —

WHY BUY A SPECIAL REFLECTOR FOR A SPECIAL ANGLE WHEN WITH ONE REFLECTOR ALL ANGLES CAN BE MADE?

CUT SHOWS ONE REFLECTOR ADJUSTED TO SIX OF THE MANY ANGLES POSSIBLE TO ITS CONSTRUCTION.

NOTHING TO GET OUT OF ORDER

Construction allows easy movement of larger (lower) part, by hand, to any angle up to 45 degrees. A turn of the set-screw on upper part fastens reflector tightly in position.

BULB IS ALWAYS STRAIGHT DOWN

Upper part of unit is immovable, its small, brilliantly polished inner reflector intensifying the strong flood of light upon areas directly below with spotlight effect.

FLEXO-DOME...Modernized Bracket Light

Listed by the Underwriters' Laboratories as Wuelker Fixture No. 171
Patents Nos. 1,821,955; 1,934,902

FLEXO-DOME is a grounded, flexible lighting fixture designed for attachment to outlet box or plaster ring with socket connected to a concealed wiring system of its own; equipped with a spun-aluminum reflector, which is easily adjusted by hand to all positions, but prevented from complete rotation and consequent twisting of the wires inside, by means of stops and set-screws made a part of the unit. After connection to feed wires, and attached in place, FLEXO-DOME constitutes an absolutely fireproof installation. The reflective surface is WUELKER DIFFUSION, the lustrous, brilliant finish worked into the aluminum, guaranteed never to tarnish, or turn black. Exterior finish is sprayed light gold.

Flexo-Dome Directs the Light with Finger-Touch Flexibility

WUELKER REFLECTOR MANUFACTURING CO.

Panama Lamp & Commercial Co., U. S. Distributors

815 Howard Street, San Francisco

WUELKER REFLECTORS are priced to SELL FAST. Built to give CUSTOMER SATISFACTION. DISTRIBUTED ONLY THROUGH JOBBERS. Here's how you can convince yourself that these WUELKER REFLECTORS do BUILD BUSINESS, and satisfied customers: Just send us the coupon attached to your letter-head, and we will gladly send you, prepaid, SAMPLE UNITS FOR YOUR INSPECTION. These will be billed on memo through your jobber.

MAIL THE COUPON FOR SAMPLE UNITS OF WUELKER REFLECTORS

PANAMA LAMP & COMMERCIAL CO., 815 HOWARD ST.
SAN FRANCISCO, CALIFORNIA

I would be interested in inspecting the WUELKER ADJUS-TO-ANGLE and FLEXO-DOME reflectors.

Name.....Street.....

Title.....City.....

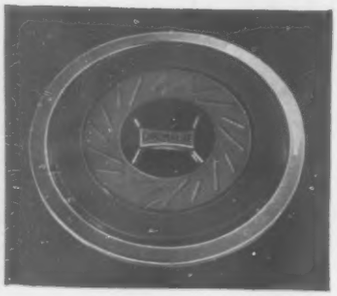
Company.....State.....

Jobber's Name.....

They sell ranges!

CHROMALOX

Super-Speed RANGE UNITS



TWO BURNERS IN ONE

THE IDEAL FRYING UNIT

FLAT TOP for FAST COOKING

SUCCESSFUL ELECTRIC COOKING DEPENDS UPON THE RANGE UNIT— *and every housewife knows it!* Today she demands a range that "cooks as good as it looks." And when she sees the businesslike, black, flat Chromalox units on a range, she usually looks no farther.

For Chromalox-equipped ranges *sell each other.* Women talk about them—how fast they cook, how long they last, how easy to clean, how immune to damage; how they save in using the inner burner only for small utensils, while in using one of the outer burners only they provide the ideal frying unit, heating a large pan uniformly.

Meanwhile every power company with a growing number of Chromalox-equipped ranges on its lines, congratulates itself upon the big reduction in "trouble" calls and service expense, and the increase of good will among its customers.

Many of these alert power companies have made big slashes in their inventories by standardizing on Chromalox Super-Speed Units for replacement work, since they fit any range, and a comparatively small stock will suffice for all service demands.

Specify
CHROMALOX
Super - Speed Units
and
boost range sales!

Mail this coupon with your business letterhead

EDWIN L. WIEGAND CO. **7540 Thomas Blvd., Pittsburgh, P**

Represented by:

Montgomery Brothers
61 Fremont St.
San Francisco, Calif.
1501 N. W. Kearney St.
Portland, Ore.

912 E. 3rd St.
Los Angeles, Calif.
911 Western Ave.
Seattle, Wash.

The Peterson Company
1921 Blake St.
Denver, Colo.

Without obligation, send us complete data about Chromalox Super-Spe Replacement Range Units.

Signed_____ **Position**_____

★Announcing-- The New 1937 LITTLE GIANT

Royal-Deluxe Tray Washer

MODEL 52 ROYAL-DELUXE

Dealers who handle Little Giant Tray Washers enjoy the freedom of a market that is hard for the conventional type of washer to penetrate. The design and construction of Little Giant puts it in a class by itself. It gives the housewife washing convenience and economies that the ordinary washer cannot duplicate.

As long as a home has a standard laundry tray there is room for a Little Giant. It fits into the wash tray—out of the way and in the place where it is most convenient to launder clothes. Thus it saves space, saves strain of handling water-laden tubs, while its floating gyrator washes clothes quickly, gently and positively.

- **Eliminates Competition**
- **Many Exclusive Features**
- **Tried and Proven Since 1922**
- **As Revolutionary as an Airplane but as Practical as an Automobile**

LITTLE GIANT WASHER HAS CREATED A FUTURE NEW SERVICE AND SYSTEM FOR EVERY HOME.

That is why Little Giant eliminates competition for there is a real difference between this practical tray washer and the conventional machine. Little Giant has a service record backed by the endorsement of thousands of users. Begin to build your washer business today, by asking us about the profitable Little Giant franchise. More dollar profit for the dealer than any other line. FAST selling for the dealer who understands "how to sell tray washers." We teach you how. Several towns still open!

Ready for Delivery Now!

MODEL 52 ROYAL-DELUXE
Polished Chrome base and lid. Art metal finished motor and gear case. Polished aluminum gear cover. Mark time Control switch. Gold Seal wringer, Chrome drain board. Balloon rolls. Automatic reversing water flume. Quick Acting release. Balanced floating motor, mounted in rubber. Floating gyrator. Retail list price, $109.50.

MODEL 62
Finished in beautiful two tone green and white acid resisting Tough Cote Enamel. Automatic overload relay and switch. Balanced rubber mounted floating motor. Quick acting Safety Wringer with bar release and automatic reversing water flume. Balloon rolls. Chrome plated controls. Floating gyrator. Retail list price, $99.50.

MODEL 72
Finished two tone green and aluminum lacquer. Safety wringer with balloon rolls. Balanced rubber mounted motor. Floating gyrator. Retail list price, $89.50.

MODEL 82
Finished in aluminum with balloon rolls and safety wringer. Balanced rubber mounted motor and floating gyrator. Retail list price, $79.50.

NEW 1937 Model Now Ready for Delivery

Write and Order Today!

LITTLE GIANT APPLIANCE CORP.
Sole Sales Executives
Little Giant Inc., Ltd.
4222 Hollis Street **Oakland, Calif.**

LITTLE TRAY WASHER GIANT

"LITTLE IN SIZE ONLY BUT A GIANT IN POWER & CAPACITY"

PRINT IN BINDING

The *swing* is to SIGHT-CRAFT LIGHTING

Sight-Craft puts better Lighting within the reach of everyone

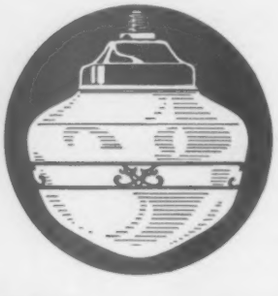
The APOLLO (above) and the VENUS (below) available with chain or stem hanger

this preference is now nation-wide

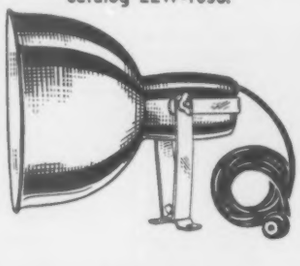
BEAUTIFUL SIGHT-CRAFT EQUIPMENT GIVES LONG EFFICIENT LIFE

. . . AT LOW COST

The Better Light for Better Sight program—backed by the skillfully trained personnel and stimulating activities of western utilities—has created a genuine **demand** for better lighting. Contractors aided by Sight-Craft are making Better Light—Better Sight history **because**—these units most efficiently fill the **need** and the **desire** for higher intensities—**with the barrier of price removed.** ALL SIGHT-CRAFT equipment is made in the West, thus saving long-haul transportation costs—insuring fast, efficient service on **special,** as well as **standard** lighting equipment. There is a differential in **quality**—in your favor, too. The superior VITROLUX porcelain enamel finish is everlasting, easier to keep clean, more durable and more efficient under the most severe atmospheric and climatic conditions. Higher intensities are easier to sell—with SIGHT-CRAFT. Investigate!



Write for prices and complete catalog ELW-1036.



SMOOT HOLMAN COMPANY SIGHT-CRAFT INGLEWOOD CALIFORNIA MADE IN U.S.A.

SMOOT-HOLMAN COMPANY

INGLEWOOD, CALIFORNIA

SAN FRANCISCO
154 Eighth Street

STOCKS CARRIED IN NEW YORK, BOSTON, ST. LOUIS, SAN FRANCISCO, INGLEWOOD, SEATTLE

NEW YORK
10 Jones Street

TOUCHDOWN!

...with America's MOST BEAUTIFUL ELECTRIC RANGES

History has repeated itself! The Electric range pioneering period *is* over. Like other popular major appliances, the electric range "arrived." Already this year sales everywhere have shown a sharp advance over 1935. But . . . is over the goal line with Westinghouse in 1936! Retailers of Westinghouse Golden Jubilee Electric Ranges have rocketed sales "sky high." Here indeed is real proof that is wise merchandising to play with the winner — if you want profitable touchdowns. Get in the game. The Westinghouse Range Fall Plan Book is bulging with new strategy. See it.

Thrilying America! Pictured here are two Westinghouse Ranges typical of the beautifully styled complete line — 11 models in all — that has been winning such unprecedented favor everywhere. It will be well worth your time to learn *all* their features.

THE "ECONOMIZER" SPEED UNIT HAS CLICKED!

18% less to cook electrically! This is the everyday experience of women who own Westinghouse Golden Jubilee Electric Ranges equipped with money-saving "Economizer" units. Unparalleled cooking speed — scorching, sticking eliminated — these are other "Economizer" features that have led enthusiastic women the country over to say, "I'm glad I bought a Westinghouse Range."

NOW READY ...a startling new Plan Book

Here is a book packed with smart selling helps. New! Different! Flexible! Amazingly adapted for practically every kind of activity. Refreshing angles in sales education, newspaper advertising, direct mail, window and store displays, radio programs. All in all, the most amazingly *usable* array of sales helps and selling materials the industry has ever offered in a single plan book.

ASK TO SEE IT!

Take a look at the Westinghouse "Over the Goal Line" Plan Book. You won't put it down even after you have studied every page. Don't wait. Send your request in NOW.

MAIL THE COUPON!

Westinghouse Electric & Mfg. Co.,
Merchandising Division, Mansfield, O.

I want to see how I can go over the goal line with Westinghouse. Show me your Fall Plan Book.

Name.....
Company.....
Address.....
City.....State..... EWT 9-36

Westinghouse

Golden Jubilee ELECTRIC RANGES

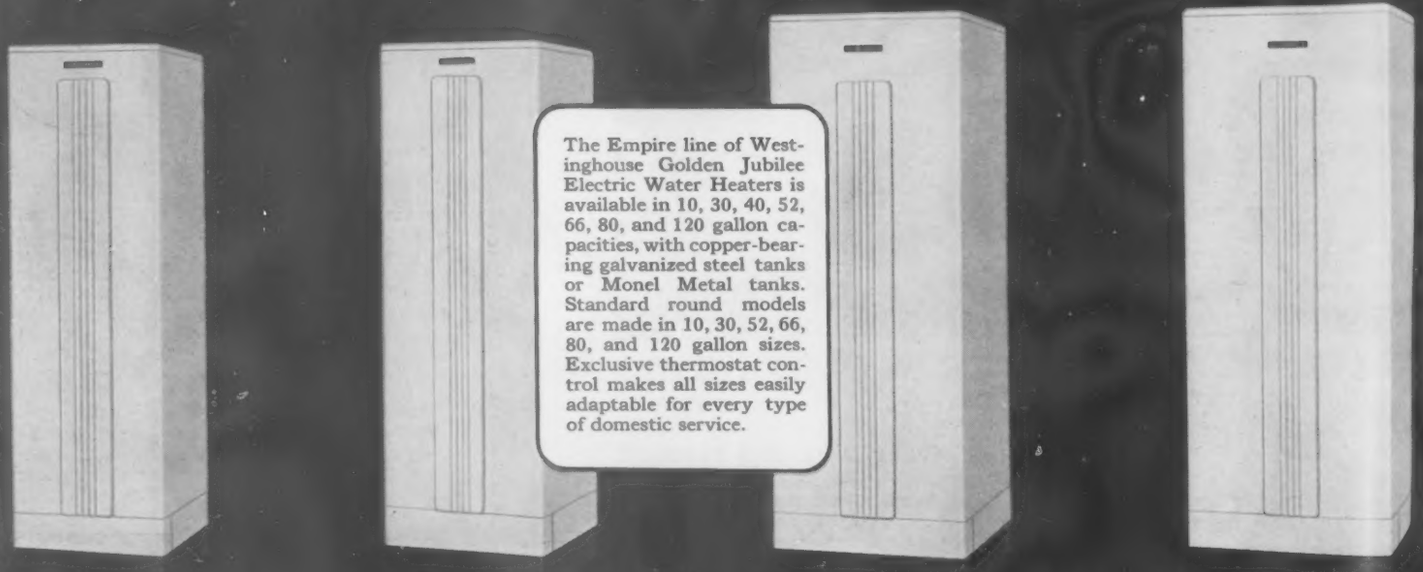
EVERY HOUSE NEEDS WESTINGHOUSE

No. 3

BEAUTY QUALITY

Miss Belle Kogan, national authority on home equi ment design, echoed the unanimous opinion of Americ women when she cited the Empire line of Westinghou Electric Water Heaters for outstanding beauty. A no wonder! These modern water heaters are beautiful styled and proportioned. They are durably finished chip-, crack-, and craze-proof white Dulux that resi heat. Designed for the homes of tomorrow, the Westin house Empire models are contributing essential beau to the all-electric kitchens of today.

But the Westinghouse Empire line is popular more than exterior styling. *Inside* engineering a construction quality have struck a new standard economical performance that has also won nation-wi recognition for dependability and efficiency in all ty of service. You are urged to learn this *inside story*



The Empire line of Westinghouse Golden Jubilee Electric Water Heaters is available in 10, 30, 40, 52, 66, 80, and 120 gallon capacities, with copper-bearing galvanized steel tanks or Monel Metal tanks. Standard round models are made in 10, 30, 52, 66, 80, and 120 gallon sizes. Exclusive thermostat control makes all sizes easily adaptable for every type of domestic service.

WESTINGHOUSE 1886 1936 GOLDEN JUBILEE

Westinghouse

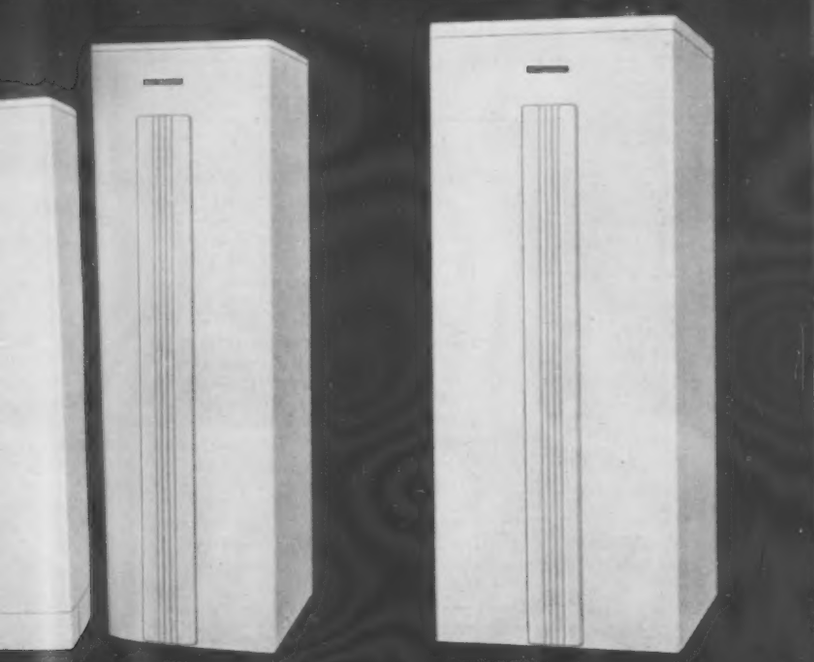
ELECTRIC WATER HEATERS

PROFIT!

equi Westinghouse Electric Water Heaters—both the Em-
neric re line and the standard round models. For it is the
ghou during, service-free *inside quality* of the entire line
y. A at has constantly pyramided reputation and profit
utiful r merchants from coast to coast.

RIDE ON THIS SPECTACULAR SELLING TIDE

ished
t resis Merchants, wise to the needs and wants of millions of
Westin merican women, have seen the Westinghouse Electric
l beau ater Heater as PROFIT MERCHANDISE, instead
a "pioneer" product. As a result, up to June 1st,
ular f eir sales leaped 72½ per cent above last year. YOU
ring a n share in this spectacular advance. The acclaimed
ndard auty and quality of the Westinghouse Electric Water
tion-wi ater are backed by the most comprehensive promo-
all typ nal program in history. Complete details are yours
story the asking. Mail the coupon TODAY!



Mail this Coupon

for samples of the factful catalog . . . powerful visualizer . . . prospecting
and contests . . . intriguing literature for all purposes . . . salesman's
volumes . . . local advertising helps. Get the story of your market-
portunity with Westinghouse Electric Water Heaters. The time is RIGHT
now.

Westinghouse Electric & Manufacturing Company,
Merchandising Division, Mansfield, Ohio

Show me the big opportunity ahead with Westinghouse Electric Water Heaters. I want to see EVERYTHING.

Name .....

Company .....

Address .....

City ..... State ..... E. W. T. 9-36

THIS electric heater has *EVERYTHING!*

- Quick Selling
- Builds Major Revenue
- No New Costs to Serve
- Revenue Guaranteed Five Years

Complete Utility and Dealer Campaign Ready for YOU

Wesix offers electric utilities quick *major* revenue through the sale of these time-tested portable electric heaters.

Here is "velvet" revenue. There are no new costs to serve.

Here is diversified revenue. Father uses the heater for his 10-minute shave. Mother for bathing. Grandma for sewing. Its use is spotted all around the clock improving the domestic load factor.

Here is revenue guaranteed for 5 years because we guarantee the heater for 5 years.

Here is better public relations. The *cozy glow* and *circulating warmth*—the Double Action heating principle — please your customers.

Yes—thousands of users, scores of utilities, and hundreds of dealers the nation over praise Wesix for its long, superb record. You can recommend Wesix knowing it will always please.

Dealers Enthusiastic!

Dealers appreciate the utility company's sales promotion. For dealers can easily cooperate—they simply wrap up Wesix and deliver it—no wiring, no come-backs—just fast selling.

The price is protected by the 5-year Guarantee Card attached to each heater. This means volume sales of standard, quality merchandise at long profits—no sacrifice of profits for volume.

Check into the 1936 Wesix sales promotion plans, ready for you now. They fit in with your regular scheduled plans. *Write at once for details.*

Wesix Features:

1. *Approved* by The Electrical Testing Laboratories of New York, Underwriters' Laboratories, Good Housekeeping Institute, and the Associated Edison Illuminating Companies.
2. *Famous* for its economy.
3. *Built for long life*, of aluminum, which will not corrode or rust. Weighs less than 5 lbs.
4. *Eye appeal* and *sales appeal.* Modern vogue with satin silvery finish contrasted with ebony-like legs and Bake-lite handle.
5. Plugs into any convenience outlet.
6. *Guaranteed for 5 years* against burn-out. In 17 years no Wesix coil has burned out under normal conditions.

WESIX ELECTRIC HEATER COMPANY

390 First Street, San Francisco

631 San Julian St., Los Angeles — 2008 Third Ave., Seattle

News of Note + + +

World Power Conference Includes Western Tour

The Third World Power Conference and the Second Congress on Large Dams, convening from Sept. 7 to 12, are expected to attract to Washington more than 3,000 delegates and visitors. Under joint sponsorship of the industries concerned, the Federal government and national technical societies, the conference will discuss technical, economical and social problems involved in the conservation of natural resources and the development of water power.

The West is included in an important post-conference tour of major construction projects. The tour will leave New York Sept. 14, and will include in its western itinerary visits to:

Fort Peck Dam, Sept. 20; Grand Coulee Dam, Sept. 21; Skagit River development, Sept. 22; Bonneville Dam, Sept. 24; stopover in San Francisco, Sept. 26 and 27; Los Angeles irrigation and flood control projects, Sept. 28; Boulder Dam, Sept. 29.

Chairman of the Power Conference is Dr. William Durand, professor emeritus of mechanical engineering at Stanford University, and fellow of the American Academy of Arts and Sciences. Dr. Durand delivered his opening address in English, French, German and Spanish.

•

Federal Interconnection Proposed in Northwest

A plan proposing unification of the federal power systems on the Columbia River with the municipal systems of Seattle, Tacoma and other West Washington cities, has been presented by City Light Superintendent J. D. Ross, who declares such a plan would be worth one hundred million dollars to the Pacific Northwest.

Ross suggests construction of interconnecting transmission lines between these systems at federal expense, to serve local power districts in the various counties at uniform wholesale rates. He advocates this federal-municipal combination in preference to the state power program measure which is to be submitted to the voters at the November election.

The municipal systems in Seattle and elsewhere would continue to function under his plan as they do now, Ross said, but they would gain a market for their waste power and have a mutual "standby" in the federal generating plants in emergencies.

A surplus of power from the City Light system would be available to the federal plant at Grand Coulee and Bonneville during the summer, when local demands are lowest and Columbia District demands are highest, Ross states. This would be returned in winter when the situation is reversed, thus assuring to the intertied system and the dependent power districts a dependable power supply throughout the year, Ross points out.

•

Bids Received for Last Colorado Plant

The Metropolitan Water District of Southern California on Aug. 27, received bids for construction of the Hayfield pumping plant on the Colorado River aqueduct. To be erected approximately 270 mi. east of Los Angeles, the plant is part of the water supply system located adjacent to Hayfield reservoir, intermediate storage basin on the aqueduct.

Most westerly of the aqueduct pumping stations, the Hayfield plant also is the last of the five to be advertised for bids. The other four plants, Intake, Gene, Iron Mountain and Eagle Mountain, are now under construction. The Hayfield plant, like the other four on the aqueduct, ultimately will contain nine pumps, each capable of handling approximately 200 cu.ft. per sec. Three units will be installed initially, with others being added as the demand for water increases.

The aqueduct ultimately will carry a billion gallons of water daily. The Hayfield lift, 444 ft., is the highest on the aqueduct, which involves a total lift of 1,616 ft. All five of the aqueduct pumping stations are to be operated with power generated at Boulder Dam and carried to the aqueduct line by a 237-mi., 230,000-volt transmission line on which work is now going forward.

•

New Proposals for Hetch Hetchy Power

San Francisco's power distribution problem, raised when Secretary Ickes refused to approve plans for distribution over Pacific Gas & Electric Co. lines, is now met with three additional proposals, known as plans 5, 6 and 7. These propose expenditures of from $8,000,000 to $43,000,000 to put the city into the business of distributing its Hetch Hetchy power. A special committee is considering two methods of promoting the utility: first by court test of the Supervisors' right to authorize a revenue bond issue; second by placing a revenue bond charter amendment before the voters.

P. G. & E. Revenues Reach New Peak

With gross revenues for the year ending June 30, 1936, reaching a peak of $94,761,000, the Pacific Gas & Electric Co. last month reported earnings available for common stock equivalent to $2.37 per share. This compares with $1.60 per share for the corresponding period of the preceding year. Dividends at the annual rate of $1.50 per share were paid during both periods.

The gross revenues showed a 5.9 per cent increase. Electric rate reductions which became effective Jan. 1, were reflected in the fact that energy consumption increased 10.1 per cent while aggregate bills increased only 5.1 per cent. Reduced gas rates, estimated to save consumers $25,500,000 annually, were in effect but two months of the fiscal year.

In conformance with its policy of simplification, the company during the year took over assets and ended the corporate existence of the Mt. Shasta Power Corp., Modesto Gas Co., Great Western Power Co. of California and subsidiaries, and Sierra and San Francisco Power Co.

The preliminary consolidated income statement was summarized:

	12 Months to June 30, 1936	+ Increase — Decrease
Gross Revenue, including Miscellaneous Income..	$94,760,320	+$5,264,228
Maintenance, Operating Expenses, Taxes (excluding Federal Income Taxes) and Reserves for Casualties and Uncollectible Accounts...	40,491,786	+ 1,709,394
Reserve for Depreciation	12,538,280	+ 52,731
Total Operating Expenses	$53,030,066	+$1,762,125
Net Income	41,730,754	+ 3,502,103
Bond Interest and Discount	15,011,211	— 444,692
Balance	$26,719,543	+$3,946,795
Provision for Federal Income Taxes	1,781,693	— 714,624
Balance	$24,937,850	+$4,661,419
Provision for Gas Revenue in Dispute.....	1,999,000*	— 124,000
Balance	$22,938,850	+$4,785,419
Dividends Accrued on Preferred Stocks	8,072,916	— 47,554
Balance	$14,865,934	+$4,832,973
Dividends Accrued on Common Stock	9,395,647	— 5,652
Balance	$ 5,470,287	+$4,838,625

*This item represents amount billed against natural gas consumers during the period July 1, 1935, to April 30, 1936, in excess of rates fixed by the California Railroad Commission. The United States District Court has not yet acted upon the Commission's application for a rehearing in connection with the Court's decision, announced in March, 1936.

•

• OPERATION NEXT MONTH of one of two 95,000 hp. generators being installed at Seattle City Light's Diablo power project on the Skagit River is anticipated, according to a report to the city council by J. D. Ross.

FULL REVENUE
For ALL the Loads When You Use

Sangamo Type HFS Socket Meter

MODERN METERS

Sangamo Type HFA Conventional Service Meter

For MODERN LOADS

Western Offices:
LOS ANGELES 326 Subway Term. Bldg.
SAN FRANCISCO 1061 Howard St.
SEATTLE 220 Ninth Ave. N.
PHOENIX 1318 W. Lynwood St.
DENVER 1526 Blake St.

SANGAMO ELECTRIC COMPANY
SPRINGFIELD, ILLINOIS

Contract Awarded for Central Valley Survey

Drilling and excavation for investigation of the Baird dam site on the Pitt River in California will be undertaken on a contract awarded to Lynch Brothers, Inc., Seattle, on a bid of $47,242.75 The site is a possible location of one of the dams in the Central Valley Federal Reclamation project.

Three bids for similar work at Table Mountain dam site on the Sacramento River were rejected. They were considered too high by engineers of the Bureau of Reclamation, which will undertake the investigation by force account labor.

Investigations will consist of drilling a pattern of holes and driving a series of 150-ft. tunnels, in order to determine rock charactersitics. Kennett Dam Site, between the other two, is already being investigated.

•

P. G. & E. Contests Power Bond Sale

Charging that plans of the Sacramento Municipal Utility District to create a competing power system are "palpably unreasonable, arbitrary, confiscatory and oppressive," the Pacific Gas & Electric Co., last month, petitioned in federal court for an injunction to halt the sale of $12,000,000 worth of bonds.

The complaint contends that the P.G.&E. will be unfairly taxed to pay off the principal and interest on the bonds and that the creation of the competing power system deprives the company of its property without due process of law. A temporary restraining order and preliminary injunction, pending final hearing, were sought.

•

I.E.S. Lamp Drive to Dominate R.M.E.A. Convention

Abundant ideas to stimulate industry-wide interest, some already launched, others to be presented at the annual convention of the Rocky Mountain Electrical Assn., Sept. 21 to 23, in Santa Fe, point the way to a successful fall and winter I. E. S. lamp campaign throughout Colorado, New Mexico and Wyoming. Every delegate to the convention, according to Manager George E. Lewis, will sign a sight-saving pledge.

Replicas of the official I. E. S. tags will be required equipment every day of the convention. On one side of the tag will be the following pledge, which every delegate will sign:

> This authorized tag of the Rocky Mountain Electrical Association certifies that the wearer appreciates the import of adequate and proper lighting; that he either now has, or will provide, one or more I. E. S. lamps, for better seeing, in his home, office or other place of business.
>
> Further, that he will make every effort to promote the cause of Better Light Better Sight, among his friends, in the schools and among the public generally.

Penalty for appearing at any convention function without the tag will be a fine of one standard, three-light I.E.S. floor lamp for each offense.

Plans of the association contemplate presentation of I. E. S. floor lamps, as favors, the scores of ladies who will attend the convention as guests.

Convention sessions will be conducted by I. E. S. lamp light, while hotel corridors, lobby and ballroom will be studied with I. E. S. lamps. Several national illuminating authorities, who will discuss the value of lighting load to utilities, are included on the program.

Twenty-five I. E. S. lamps are being distributed to utility employees at the rate of five a week, as judges disclose the best 100-word submissions on the subject "Advantages of the I.E.S. Lamp in the Home." Utility salesmen are competing in sales for awards of free trips to the convention.

•

• PREMIER MINES and the Congress Mines, two major mining companies operating in the Bridge River area of British Columbia, have signed with the B.C. Electric Railway Co. for supply of power. The Pioneer power plant will continue to operate, but as this mine requires more power than it is at present producing, the surplus will be supplied by B.C. Electric. The contract does not involve any additions to the B. C. Electric company's plant.

•

• OUTSTANDING DESIGNS of medium priced homes prepared by ten national home and women's magazines have been incorporated in a single pamphlet by the General Electrical Home Bureau. Elevations and floor plans with a variety of suggested exteriors are included with a brief description of the features of each selected design as published by the following: Better Homes and Gardens, Collier's, Ladies' Home Journal, Good Housekeeping, Woman's Home Companion, McCall's, Pictorial Review, The American Home, House Beautiful, and House and Garden.

•

• LINES for getting Boulder Dam power out of the canyon to the switch yard at the top of the canyon walls are under construction, it was announced by E. F. Scattergood, chief electrical engineer. For first anticipated demand, six 0.4-in. diameter wires will be run. Switch yard cable connections are completed.

Utah P & L Contends Discounts Lower Rates

Answering the Public Service Commission's inquiry into the delinquent charge features of customer billing, the Utah Power & Light Co. filed a brief stating that elimination of delinquent charges would be of no benefit to most consumers and would delay reduction of rates. Abandoning delinquent charges was estimated to increase operating expenses by $173,179.

The brief further stated that in 1935 the company's collection expense was $97,967, or $31,000 in excess of income from the deferred payment charge. Without delinquent charges, collection costs would double, it was estimated.

Pointing out that the practice is similar to that of governmental agencies in imposing penalties on failure to pay taxes promptly, the brief emphasized:

1. The deferred payment charge is made to cover cost of collecting delinquent accounts and to furnish an incentive to prompt payment.
2. The amount of delayed payment charges is not sufficient to pay costs of collecting delinquent accounts.
3. Collection costs and loss of working capital are reduced through incentive for prompt payment, thus eventually lowering rates.

The brief, filed by George R. Corey and A. C. Inman, stated that the method has been approved by public service commissions of 30 other states.

●

• LOW BIDDER on fifteen transformers to be installed in four pumping plants on the Colorado River aqueduct project was the General Electric Co., with bids totaling $716,721. The bid of the Westinghouse Electric & Manufacturing Co. was $747,500, that of Allis-Chalmers, $756,551. The transformers will be used by the Metropolitan Water District of Southern California to step down Boulder Dam energy from 230,000 to 6,900 volts.

●

• One Boulder Dam generator was scheduled to make its first turn Sept. 7, when President Roosevelt was to press a button in Washington which would open a Boulder Dam needle valve. A nation-wide broadcast was scheduled for the ceremony incident to the President's address to the World Power Conference.

●

• FHA LOANS up to $50,000 for modernization of business, industrial and institutional properties, will continue to April 1, 1937, under the amended Title I of the National Housing Act. Loans under $2,000 are still available for plumbing, heating and wiring. Regulations are set forth in a FHA booklet.

The Standard News

September 1936 — Electrical Edition

Published by THE STANDARD ELECTRIC STOVE CO., Toledo, Ohio

Mother's Work Week

The old proverb says that "Woman's work is never done." That proverb was written when the feminine head of the house really had long hours.

Take a look into the kitchen and household of today. A clean cool kitchen all operated by a flip of the switch. Monday used to be wash day. Maybe it still is, but what a different washday. No water to heat or carry to tubs, no rub-a-dub-dub. The wash is in the dryer and before noon it is all over, with a motor doing the real hard work. Tuesday, ironing day. A day formerly devoted to most gruelling toil. Now greatly lessened by modern electrical devices. And so through the week. Hard work all intermingled with old style cookery.

Now, the Modern kitchen has everything electrical; you don't even have to wind the clock any more. Freedom from drudgery has been industry's contribution to the American housewife in the past 25 years. More time to spend on herself and with her family, to study and read and form new friendships.

Standard is proud of the part it has taken in this drama of household change. To be identified with such a movement and to have contributed with research and development has been a privilege. Since 1910, Standard has been in the thick of this development. Our experience covers the whole period of this remarkable change in American life, so intertwined that the story of Standard is the story of the development of the modern kitchen.

With this perspective, Standard offers newer and better designs, based upon the demands of the modern housewife.

C. A. PIERSON.

When You Want It

Hot water when you want it!!! There are Standard water heaters in all sizes from 6 gallons to 120 gallons. All the same style with the time-tried Standard heater and control. The Standard catalog shows these, or ask for leaflet A219.

A Standard heater is the last word in design and workmanship. These heaters never require attention. When connected up to the water line and electric system, they are ready for service. Just turn the switch and forget it from then on. You will have a plentiful supply of hot water at all times. Clean, no smoke, no fumes, no matches, no danger of explosion, silent and efficient.

The Beautiful Standard Oven

The picture below shows the Standard one-piece oven. Note that the runners are a part of the oven sides, so that there are no flapping strips to catch the cleaning cloth. Note the view from the outside, how the reverse of the indentations acts

as a lock for the insulation, to prevent packing. Note the recessed oven burners. In a Standard the oven is 14 inches from top to bottom, but notice that the burners are recessed, which makes all the space formerly occupied by the burners usable for cookery. This is an exclusive Standard feature.

To see this oven and compare it with any other will reveal its many superior points. It is the finest oven that the range industry has ever produced. Strong, beautifully enameled, tested for even heat. This reliable Standard oven is the last word in oven construction.

Start with Standard

If you are not already selling electric ranges, or if you are not satisfied with the line you are now selling, get in touch with Standard by writing to the address below. Standard is the oldest exclusive manufacturer of electric ranges. Our line is the most complete. We can furnish you with everything you need for electric cookery for the large or small home, or club, hotel or restaurant. The line includes every other electrically heated device. Write today.

THE STANDARD ELECTRIC STOVE COMPANY

Toledo, Ohio, U. S. A. Dept C

Not on this Forging!

The clamp illustrated above is representative of all BTC drop forged copper-steel transmission hardware.

Observe the rounded contour of every line—the complete absence of all corona-inducing sharp edges.

Outside of proper design, consider also the inherent qualities of the forging—the smoothness of the die-formed surfaces, the machining of all load-bearing socket openings and holes—the perfect galvanizing job, obtainable due to these qualities.

THE BREWER-TITCHENER CORPORATION
Cortland, New York

Through Your Insulator Manufacturer Only

BTC

FOR RELIABILITY, SPECIFY A FORGING

Municipal System Urged In Yakima, Wash.

A municipal power and light system for Yakima, Wash., was recommended to the city commissioners in a resolution planned by a committee of business men together with Henry L. Gray, consulting engineer. Gray recommended purchase of distribution facilities from the Pacific Power & Light Co.

He estimated the cost of purchasing the system included within 207 sq.mi. serving Naches, Selah and Moxee, would be $900,000 including the office building, which he proposed using as a city hall. The plan, on which it is understood a municipal election will be held, proposes the Roza reclamation project as a source of power together with erection of a diesel standby plant. Neither would be necessary upon arrival of power from Grand Coulee or Bonneville.

That the issue will be strongly contested was foreseen when a group of eleven business men called on Mayor Harry Temple protesting an election. They urged that an unprejudiced committee be appointed to study Gray's report and inform the public before the matter be put to popular vote.

•

• ON THE NOVEMBER ballot in Washington will be a proposed constitutional amendment which would authorize the State to engage in the production and wholesale distribution of electric energy. It would also permit the State to "assist the development of hydro-electric generating plants, incur indebtedness by the issuance of bonds" and provide for power districts and a regulatory commission.

•

• AWARD OF CONTRACT for furnishing transformers to be installed in the North and South Seattle substations of the Seattle Board of Public Works was to the Pennsylvania Transformer Co., on a bid of $114,465. To the Pacific Electric Manufacturing Co., Seattle, went the contract for circuit breakers and disconnecting switches for $33,040.

•

• SMOKESTACKS of the Puget Sound Power & Light Co.'s plant at Boeing Field, Seattle, have been condemned as a hazard to aviation. Negotiations are under way between the company and city concerning method and cost of removal.

•

• INCREASED GENERATING CAPACITY of non-federal, publicly owned plants under PWA projects authorized up to Aug. 1, 1936, will amount to 517,520 kw., according to PWA figures.

We Are In Business
TO GIVE
SERVICE
GEO. E. HONN COMPANY
420 Market St., San Francisco, Cal.

Manufacturers Representatives for

Tree Trimming Equipment
● Bartlett Manufacturing Co.

Friction and Rubber Tapes
● Clifton Manufacturing Co.

Pyrex Insulators
● Corning Glass Works

Transformers
● Gardner Electric Mfg. Co
Power and Distribution Transformers
● Lee Skipwith & Co., Inc.
Niagara Air-Insulated Current Transformers

Poles and Cross Arms
● Mineralized-Cell Wood Preserving Co.

Cable Grips
● Kellems Products Inc.

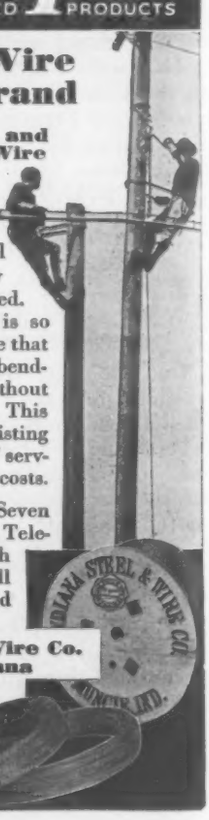
Neon Multiple Plug Fuses
● Pacific Indicator Co.

Fuses, Cutouts, Protective Devices
● Schweitzer & Conrad, Inc.

Crapo
GALVANIZED PRODUCTS

Seven Wire Steel Strand

Telephone and Telegraph Wire



Crapo Galvanized Steel Strand is quickly, easily and economically served. Its *pure zinc* coating is so adherent and so ductile that it withstands vigorous bending and twisting without cracking or peeling. This insures corrosion-resisting joints, longer years of service, lower maintenance costs.

Crapo Galvanized Seven Wire Steel Strand and Telephone and Telegraph Wire are available in all standard grades and sizes.

Indiana Steel & Wire Co.
Muncie, Indiana

Educators Attend Seeing Conferences

Impetus to the sight conservation movement is being added in California by educational leaders who are putting into practice the fundamentals set forth at six conferences on the science of seeing. The conferences, led by prominent lecturers and authorities on seeing, were conducted by the Sight Conservation Council of Northern California.

Constant endeavor of the meetings was to cover the subject with minimum technical treatment, but without omission of fundamental principles. To this end demonstrations were extensively used.

The outline of conferences indicates the sequence of presentation:

CONFERENCE NO. 1
1. Light—Beam, Spectrum, Luminescence (Line Spectrum), Mechanics, Definitions.
2. Units and Terms—Candle-power, Lumen, Foot-candle, Inverse Square Law, Cosine Law.
3. Light Measuring Instruments—Light Meter for Measuring: Foot-candles, Brightness, Reflection Factors.

CONFERENCE NO. 2
1. Anatomy of the Eye—Organic Seeing, Retina Sensitivity, Form Seeing, Central Vision, Periphery Vision, Motion Seeing, Color Vision.
2. Lens of the Eye and Light—Myopic Lens (Short Sight), Hyperopic Lens (Far Sight), Astigmatic Lens, Focusing Lens, Iris Opening (Youth), Iris Opening (Adult).
3. Physiological Optics—Eye Movements, Eye Habits, Eye Illusions.

CONFERENCE NO. 3
1. Light Sources—Incandescent Lamp, Temperatures (Qualities in Light), Voltage (Advantages through maintenance).
2. Light Control—Transmission of Light (clear media, color media), Reflection, Absorption, Refraction.

CONFERENCE NO. 4
1. Styles of Lighting—Bare Lamp, Direct Lighting, Indirect Lighting, Semi-indirect Lighting.
2. Brightness and Glare Factors in Glass Used in Doors, Partitions, etc.—Opal Glass, Sand Blasted Glass, Ribbed Glass (Vertical, Horizontal), Configurated Glass, Colored Glass.

CONFERENCE NO. 5
Pigment vs. Light Color—Law of Color, Harmony of Color, Absorption of Color, Color Fatigue.

CONFERENCE NO. 6
Amount of Light—For Mere Seeing, for Seeing Tasks, for Preference, for Contrast Interpretation.
Direction of Light, Natural, and Artificial Light for—Wall Coverings, Desk Arrangement, Blackboard Arrangement, Windows, Shade and Louvres.

Clark Baker, executive secretary of Sight Conservation Council, organized the programs and was among the lecturers. Authorities drawn from outside the council were Profs. Leland H. Brown and William M. Danner, both of Stanford University, and F. L. Mason of the University of California.

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• IMPORTANT POWER AND RATE terms, abbreviations and units of measurements are defined in a glossary issued by the Federal Power Commission as part of its electric rate survey. Purpose of the glossary is to provide a uniform terminology for the reports, documents and correspondence of the commission. Priced at 5 cents, the glossary may be obtained from the superintendent of documents, Washington.

FARIES I·E·S LAMPS

EASY TO SELL . . .
PROFITABLE TO STOCK!

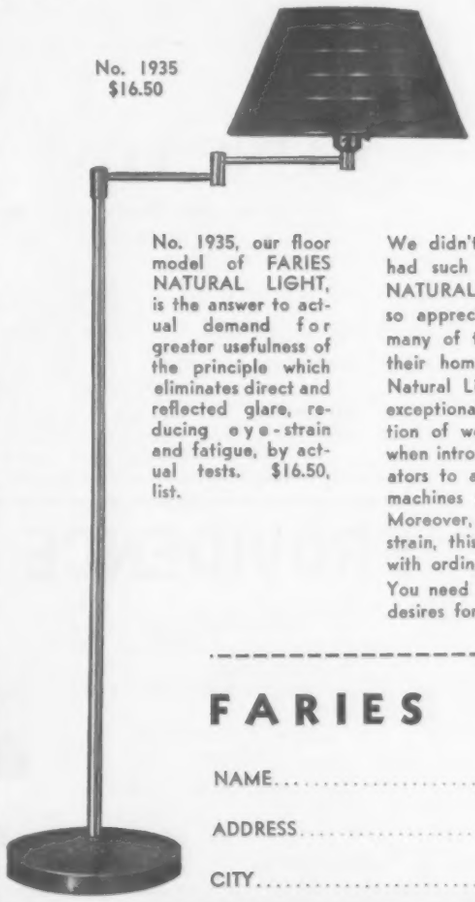
No. 2224
$10.00

No. 2224, a modern I. E. S. lamp, appeals to all tastes, including the conservative. It's one of Faries' new models—but not so new that it hasn't proved itself an immediate success. You can stock it with confidence. The Faries Line, with an enviable history since 1880, is as well known for its artistic designs as for its enduring standard of quality. To show them is to sell them. $10.00, list.

No. 1989
NATURAL
LIGHT
$11.00

No. 1989—known as FARIES NATURAL LIGHT, is a high-grade commercial lamp for better supplementary lighting of general offices. It can be attached permanently to a desk or machine, or used as a portable with the clamp attachment. It leaves the entire working area unobstructed. It will swing freely either right or left, to accommodate the shifting of work. $11.00, list.

No. 1935
$16.50



No. 1935, our floor model of FARIES NATURAL LIGHT, is the answer to actual demand for greater usefulness of the principle which eliminates direct and reflected glare, reducing eye-strain and fatigue, by actual tests. $16.50, list.

We didn't know, until we investigated, just why we had such a large percentage of repeat orders on NATURAL LIGHT. It developed that office workers so appreciate this lamp during business hours, that many of them insist on having the same model on their home desks, as well. The story of tests on Natural Light is unusually interesting and gives you exceptional talking points. An unprejudiced organization of world-wide reputation proved that this unit, when introduced into the office, allowed machine operators to actually approach the index speed of their machines and at the same time reduce errors 50%. Moreover, through the elimination of glare and eyestrain, this unit reduced fatigue 66% by comparison with ordinary lighting conditions.

You need all of these models in stock. Indicate your desires for more information, on coupon below.

FARIES MANUFACTURING CO.
DECATUR, ILLINOIS

NAME.....

ADDRESS.....

CITY..... STATE.....

BRASS BUSHED
for greater strength

•

Hemingray Adds to its Long List of Advantages

1. Brass bushed smooth threads for insulator pin.
2. Greater mechanical strength.
3. Sustained high dielectric strength.
4. Unaffected by sudden temperature changes.
5. Withstand maximum insulator pin expansion.
6. Never age or deteriorate.
7. Controlled uniformity of product.
8. All surfaces impervious to moisture.
9. Tougher—withstand rough handling.
10. Clear and flawless for easy inspection.

Owens-Illinois Glass Company, Hemingray Division, Muncie, Ind.

HEMINGRAY Glass INSULATORS

Victoria Domestic Rate Reduced by 1 Cent

Reductions in rates, estimated to save 17,500 domestic consumers of Victoria and suburban areas about $50,000 a year, became effective on meter readings taken last month, it was announced by A. T. Goward, vice-president of the B.C. Electric Railway Co.

The rate in Greater Victoria was 6c a kilowatt hour, with a secondary step of 3c a kw.-hr. These now are 6c and 2c, while the charge in the suburban areas will be 8c and 2c.

Minimum monthly charges remain as before. The reduction affects homes only and does not cut charges in commercial houses.

•

Edison-San Joaquin Interconnection Approved

Approval of the interchange of energy between the Southern California Edison Co., Ltd., and the San Joaquin Light and Power Corp. was granted Aug. 19, by the California State Railroad Commission, when it authorized the companies to enter into a ten-year contract.

In support of the companies' applications it was recited that without the intercommunication it would become necessary for the San Joaquin company to construct a $4,000,000 steam plant, while the Edison company would have a surplus of power until 1943. Cost of transmission lines to connect the San Joaquin system with Edison substations at Magunden and Big Creek is estimated at $1,300,000.

Over opposition of the California Water Project Authority, company officials testified that, contrary to being detrimental, the interconnecion will prove a benefit to the Central Valley Water Project. In the interests of the project, the commission reserved jurisdiction to modify the contract, which becomes effective July 1, 1937.

•

• COMPLETE ELECTRIFICATION of the Hedley Mascot Gold Mines at Hedley, B.C., was recently completed by the Reston Electric Co., of Vancouver. The job consisted of the installation of approximately 1,000 hp. in electric motors and the construction of more than 2 miles of 6,600-volt lines. Included in the job were two substations, the first rated at 450 kva., 6,600 to 440 volts and the second 300 kva. with the same voltages.

•

• AMONG THE MAJOR new industrial installations in California is the 600-kw. load in electric welding equipment now being installed in the R. G. LeTourneau, Inc., plant at Stockton.

LAPP
LINE POST INSULATORS

Lapp Line Post Insulators eliminate radio interference due to both dirt and electro-static conditions.

★

Write for Bulletin No. 123 describing and cataloguing these insulators.
LAPP INSULATOR CO., Inc.
Le Roy, N. Y.

Los Angeles — MAYDWELL & HARTZELL INCORPORATED — San Francisco

★ *Electrical Engineers and Manufacturers' Representatives* ★

PROVIDENCE INSULATED WIRE CO.

PROVIDENCE, R. I.

Manufacturers of

TYPE AEIC SERVICE ENTRANCE CABLE

• Concentrically wound bare neutral conductor, galvanized oval armor, weatherproof and flameproof finish.
For use on entrances without conduit.

Proof Against Theft of Current

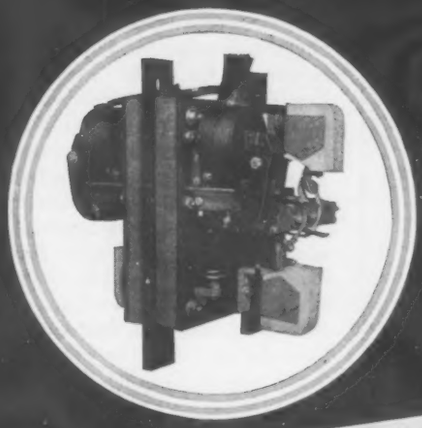
Samples and Prices on Request

Los Angeles — MAYDWELL & HARTZELL INCORPORATED — San Francisco

★ *Electrical Engineers and Manufacturers' Representatives* ★

Simplicity

THE KEYNOTE OF BR BOOSTERS



● **There is nothing complex about Westinghouse BR Feeder-Voltage Boosters. Every part has been designed to attain the simplicity that reduces maintenance to the minimum and makes inspection as easy as possible.**

In keeping with this spirit, simple magnetic-operated contactors are used for changing taps. No gears, motor, limit switches, or other similar devices are used. These contactors have both front and back contacts made of heat-resisting material to withstand all normal arcing and are submerged in oil to assure long life. To make them easily accessible for inspection and maintenance, they are mounted in a separate compartment at the top of the tank.

Ask for BR Booster Catalog 47-225, Room 5-N, East Pittsburgh, Penna.

J 70023

OTHER POINTS OF *Simplicity*

1. **Control Box arranged for bolting to the booster tank, or for separate mounting away from the booster.**
2. **Control Panel with all relays can be removed easily from the weatherproof control box for laboratory adjustment.**
3. **Safety Switch for disconnecting control relays.**
4. **Time Delay in all positions to prevent needless operations.**
5. **Diagram Nameplate.**

WESTINGHOUSE 1886 W 1936 GOLDEN JUBILEE

Westinghouse

...about People

Polhemus Named V. P. for Portland Power Co.

Resigning as chief engineer and general manager of the Port of Portland, James H. Polhemus was appointed executive vice president of the Portland Electric Power Co. The position, newly

JAMES H. POLHEMUS

created by the board of directors last month, is designed to relieve President Franklin T. Griffith of operating details concerning the company's traction and power subsidiaries.

Management of the subsidiaries, Portland General Electric Co. and Portland Traction Co., remains unchanged. Born in Portland and a civil engineering graduate from Stanford University, Mr. Polhemus has had a varied engineering experience. He had been with the Port of Portland as chief engineer for 16 years. He is president of Portland Chapter, American Society of Civil Engineers. John C. Doyle succeeded him as port manager.

●

Edison Personnel Changes In San Joaquin Valley

Personnel changes in the San Joaquin Valley territory of the Southern California Edison Co. effective Sept. 1, have been announced by W. L. Frost, vice-president of the company.

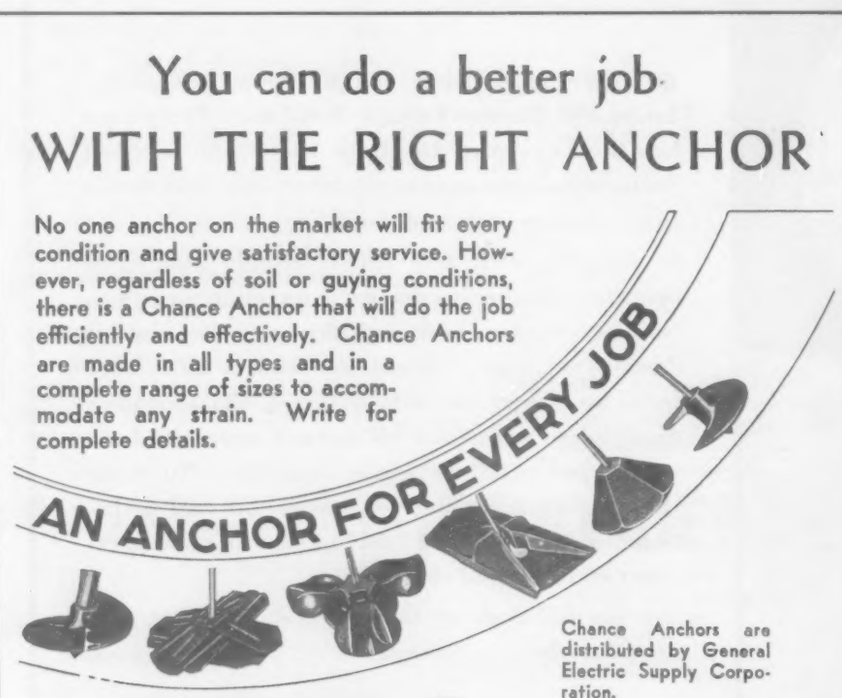
L. R. Quinby, manager of the Delano district for the past three years, has been appointed manager of the Porterville district. He will succeed G. H. Whitney, who is to go to the Santa Ana division as power specialist. G. H. Sullivan, for the past seven years power specialist in the Santa Ana division, has been appointed manager of the Delano district, succeeding Mr. Quinby.

●

• LEON HESEMAN has been made credit agent of the Southern Sierras Power Co., filling the vacancy caused by the death of the late J. H. Warren.

You can do a better job
WITH THE RIGHT ANCHOR

No one anchor on the market will fit every condition and give satisfactory service. However, regardless of soil or guying conditions, there is a Chance Anchor that will do the job efficiently and effectively. Chance Anchors are made in all types and in a complete range of sizes to accommodate any strain. Write for complete details.



Chance Anchors are distributed by General Electric Supply Corporation.

A·B·CHANCE CO.
Utilities Division
CENTRALIA
MISSOURI

Ellerbeck Heads Utah Power Sales

George L. Ellerbeck has been appointed superintendent of power sales in the general sales department of the Utah Power & Light Co. He succeeds Glen B. Walker, who assumes new duties involving special work in connection with large power users.

Mr. Ellerbeck entered the employ of the Utah Power company in 1927 as commercial lighting salesman. In 1929 he was placed in charge of the commercial lighting department in Salt Lake City, and accomplished excellent results in the promotion of commercial lighting activities. During the early part of 1936 he was promoted to the position of assistant to the supervisor of commercial sales, which position he held at the time of taking over his new activities as superintendent of power sales.

●

O'Brien, Byllesby Head Dies in Chicago

John J. O'Brien, president of H. M. Byllesby & Co., and Standard Gas & Electric Co., died last month in Chicago, victim of a heart attack following a two-weeks' illness. He was 67.

Mr. O'Brien was a director of many utility companies, including the San Diego Consolidated Gas & Electric Co., Southern Colorado Power Co., The California Oregon Power Co., Mountain States Power Co. and Pacific Gas and Electric Co.

Born in Chicago, Mr. O'Brien was first employed by the Pullman Co., and entered the electrical business in 1889, when he joined the United Edison Manufacturing Co., which later merged with General Electric Co. He became associated with the late Colonel H. M. Byllesby in 1902, and assumed presidency upon Colonel Byllesby's death in 1924.

●

• A. J. SNOW, chief engineer of the Salt Lake office, district F, of the Board of Fire Underwriters of the Pacific, has been appointed to the Electrical Council of the Underwriters' Laboratories. He fills the vacancy caused by the death of Claude W. Mitchell. The council has 36 members and acts to keep the Laboratories' standards of safe construction in step with field practices.

●

• FRITZ FALL of the Central Division, and Charley Hess of the Northeastern District, Puget Sound Power & Light Co., Seattle, both were named winners in a contest among Commercial Lighting representatives. They received duplicate prizes of a trip to Nela Park. Each man exceeded 200 per cent of his bogey.

PRIVATE TELEPHONE SYSTEMS

From Two Telephones to Two Thousand or more-

COMPLETE SYSTEMS from $12 up-

New Business-- New Profits--

for the

electrical merchandiser!

Selling private telephone systems opens up a hitherto unexploited market for dealers in electrical equipment—creates new opportunities for profit! Our new merchandising plan—backed by national advertising—permits electrical wholesalers, dealers and contractors to share in this tremendous potential market on a very attractive basis.

These systems include the well-known Automatic Electric P-A-X (Private Automatic Exchange), Intercom. and Serv-U-Fone Systems —ranging in size from 2 to 2000 telephones, and more—and in price, from $12 up. Write at once for full information.

Automatic Electric Private Telephone Systems are designed for private service. They cannot be connected with the public telephone system.

American Automatic Electric Sales Company

1033 West Van Buren Street, Chicago

Sales Offices at
Los Angeles, San Francisco and Seattle

Benjamin F. Pearson, Pioneer, Dies

Benjamin F. Pearson, retired official of the Southern California Edison Co. and pioneer in the Southern California electrical industry, died Aug. 18, at a Long Beach hospital as the result of a heart attack. He was 69 years of age.

Long associated with the electrical development of Southern California, Mr. Pearson held many offices of importance in the Edison Company, and was manager of industrial relations at the time of his retirement in December, 1933. His thirty-eight years of service dated from 1896, when he joined the Redlands Electric Light & Power

BENJAMIN F. PEARSON

Co., one of the predecessors of the Edison Company. Mr. Pearson directed much of the service expansion of Edison and its predecessor organizations. He was general superintendent of the Edison Electric Co., the Southern California Edison Company, after 1909, and in 1917, when the Edison Company and the Pacific Light & Power Co. were consolidated, he became superintendent of the division comprising Southern California. He was appointed manager of operation in 1921, and manager of industrial relations in 1925.

At the time of his death Mr. Pearson was vice-president of the Los Angeles City Planning Commission. During his career he was president of the Los Angeles chapter, American Red Cross; chairman of the board, Metropolitan Symphony Orchestra; president of the Los Angeles City Club; president of the Los Angeles Bureau of Vocational Service, and a member of the juvenile welfare section, University of Southern California.

Born in Cowley, Middlesex County, England, on Sept. 16, 1867, Mr. Pearson was educated at St. Mary's School and Uxbridge grammar school. He went to Los Angeles in 1889. Surviving are his widow, Florence L. Pearson; two daughters and two sons.

$90,000 FIRE THREATENS TO DESTROY LIGHT PLANT
Intense heat and choking fumes accompanied the burning of two transformers at the main generating plant of the local electric light company.
Although the fire occurred outside of the buildings, it appeared for a time that it might reach and de

PROTECT
Your System

When a failure occurs are you protected—will the equipment that failed be isolated?

S & C equipment is available so that if a failure in potential transformer insulation occurs—the fault current can be limited to approximately 200 amperes, regardless of the possible short circuit current.

S&C

REG. U. S. PAT. OFF.

RESISTORS
Absorb the Bumps

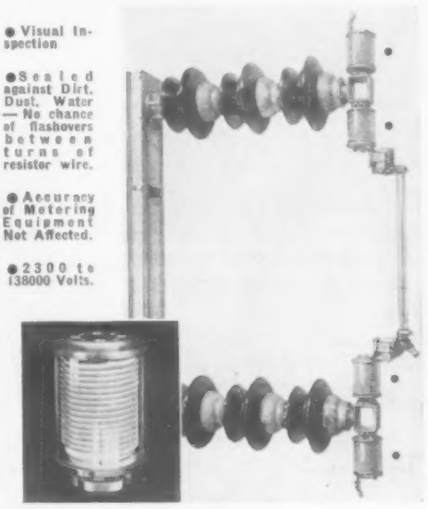
S&C Resistors and DLC (low current) Fuses give DOUBLE protection. The operation of the DLC Fuse isolates the potential transformer in case of primary insulation failure or in case of secondary short circuit.

S&C Fuse-and-Resistor combinations are giving insurance in thousands of applications. Easily applied in existing installations.

SCHWEITZER & CONRAD, Inc.

4435 Ravenswood Ave Chicago, Ill.

WESTERN REPRESENTATIVES
San Francisco: Geo. E. Honn, 420 Market St.
Los Angeles: Farnham & Cunningham Edison Bldg.
Seattle: T. S. Wood, 220 Ninth Street, N.
Salt Lake City: Ambler & Rifer, Kearns Bldg.
Mfg. in Canada by Powerlite Devices, Ltd., Toronto, Can.


● Visual Inspection
● Sealed against Dirt, Dust, Water — No chance of flashovers between turns of resistor wire.
● Accuracy of Metering Equipment Not Affected.
● 2300 to 138000 Volts.

Turnbull Heads New Hotpoint Sales Setup

R. W. Turnbull, formerly manager of the G.E. traffic appliance sales division and well-known figure to the industry on the Pacific Coast, has been made a member of the board of directors and vice-president and general sales manager of the Edison General

R. W. TURNBULL

Electric Appliance Co., Chicago. His appointment is part of a realignment which includes Hotpoint decentralization and reorganization as a company acting independently in the specialty appliance field. The new organization will assume responsibility for the sale of a Hotpoint specialty appliance line which will include new and improved Hotpoint refrigerators and home laundry equipment in addition to Hotpoint ranges, water heaters and dishwashers. Hotpoint refrigerators and Hotpoint home laundry equipment will be withdrawn from the appliance lines marketed by the G.E. appliance and merchandise department. The Hotpoint lines will be marketed through independent wholesale distributing channels.

Mr. Turnbull has a background of 26 years' association with the electrical appliance business. He began his career with the Southern California Edison Co. in 1910. The following year he joined the Pacific Electric Heating Co. at Ontario, original manufacturers of Hotpoint products. In 1912 he entered the employ of the General Electric Co. as Pacific Coast heating device specialist, continuing in that position until 1917 when he entered the army air service.

With the merger of the Hotpoint Electric Heating Co. and the Hughes Electric Heating Co. to form the Edison General Electric Appliance Co., Mr. Turnbull was placed in charge of Pacific Northwest sales. In 1924 he was made manager of the entire Pacific Coast district. Mr. Turnbull went to Chicago in 1931 to become vice-president in charge of sales, a position he held until the traffic appliance business was moved to the G.E. Merchandise Department at Bridgeport in 1932 where he assumed the position of assistant appliance sales manager. In November, 1935, he was appointed manager of the traffic appliance sales division, continuing in that capacity until the present time.

•

• THREE GRAYBAR ELECTRIC CO. employees in the West last month received awards for service. James H. Kelly, sales manager at Seattle, was given recognition for 30 years with the company. Mr. Kelly started with the company in San Francisco; after three years he was transferred to Seattle, then placed in charge of the Tacoma office. In 1924 he was transferred back to Seattle as sales manager. Twenty-year awards were made to Ulysses G. Foodman, quotation clerk at Los Angeles, and to Walter K. Means, salesman at Los Angeles.

•

• DR. JOHN R. HAYNES has been re-elected president of the Los Angeles Board of Water and Power Commissioners. He has been a member of the board for fifteen years and has served three years as president. Watt L. Moreland, new member of the board, has been elected vice-president.

• RENO E. THATCHER, superintendent of the Service Department, central district, Puget Sound Power & Light Co., retained his title as best elder golfer in Washington when he defeated Grant Seaton 6 up and 5 to play, in the tournament of the Washington State Senior Golfers' Assn.

•

• W. E. GUTZWILLER, Allis Chalmers Mfg. Co. specialist on mercury-arc rectifiers from Milwaukee, was in San Francisco last month in connection with the electrification of the transit facilities on the San Francisco-Oakland Bay Bridge.

•

• J. R. GABBERT, advertising manager, Southern Sierras Power Co., was recently re-appointed to the State Board of Education after filling the unexpired term of Dr. E. P. Clarke, of Riverside.

•

• JAMES LIGHTBODY, publicity manager for the B.C. Electric Railway Co., Vancouver, has been elected vice-president for District No. 1 of the Pacific Advertising Clubs' Assn.

•

• BLISS G. SINCLAIR has been appointed assistant chief engineer of the Department of Public Service of Washington State. After 9 years' association with the department, he takes the place of Carl D. Pollock, who resigned to accept appointment with the West Virginia Public Service Commission.

•

• CARL J. SACHS has been appointed Southern California and Arizona district manager for the Arrow Electric Division of the Arrow, Hart & Hageman Electric Co., with offices at 405 E. 3d St., Los Angeles.

•

• W. G. KEYES, 55, cashier and assistant treasurer of the Southern California Edison Co., Los Angeles, died recently after being stricken with a heart attack.

MAYDWELL

Glass Insulators

All Standard Numbers
For All Purposes

Made of high quality materials in a modern Pacific Coast plant producing an unusually tough glass to withstand all severe service conditions.

MAYDWELL & HARTZELL
INCORPORATED

Electrical Engineers and Manufacturers' Representatives

Los Angeles ★ San Francisco

FOR

- *Lasting Economy*
- *Strength*
- *Safety*

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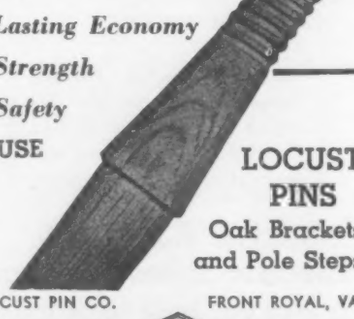


LOCUST PINS
Oak Brackets and Pole Steps

LOCUST PIN CO. FRONT ROYAL, VA.

MAYDWELL & HARTZELL
INCORPORATED

Los Angeles ★ San Francisco

...about the Trade

Meyberg Co. Opens Sacramento Branch

Leo J. Meyberg Co., California distributors of Norge major appliances, R.C.A. radios and tubes and Westinghouse small appliances and lamps, has opened a new branch at 1716 L St., Sacramento. The new establishment will serve the upper San Joaquin Valley and the entire Sacramento Valley.

Comprising in excess of 6,000 sq.ft., the building houses one of the finest showrooms and most complete appliance displays in that territory. For the present no Norge or Westinghouse stocks will be carried but complete stocks of R.C.A. sets, parts and tubes will be available in Sacramento.

O'Farrell Welsh has been transferred from the Los Angeles Meyberg house to Sacramento as manager. He will be assisted by W. E. Larney, who has been transferred from San Francisco.

•

• W. H. SHEEHAN has been appointed advertising manager of the Apex-Rotary Manufacturing Co. of Oakland, which operates in the eleven western states, according to announcement of G. B. Schuyler, head of the concern. J. Fred Stephens, national advertising and sales promotion manager for Apex-Rotarex Corp. of Cleveland, has moved his headquarters to that city. He will make two trips a year to Oakland, to coordinate advertising activities of the two concerns.

•

• TRUMBULL ELECTRIC MANUFACTURING CO., INC., recently held its first West Coast sales conference, meeting in San Francisco. In addition to members of the San Francisco division, the conference was attended by R. C. Graves, sales manager of eastern headquarters; C. D. Hepler, Seattle division sales manager, and A. G. Von Normann, Los Angeles division sales manager.

•

• INDUSTRIAL SUPPLY CO., Salt Lake City, has been appointed distributor for the Lincoln Electric Co. of Cleveland, Ohio. Industrial supply will maintain a complete supply of Lincoln welding equipment. A. B. Kemp, manager of the supply company's welding division, will be available for consultation on welding problems.

•

• C. E. GOODALE & SON is a new electrical contracting firm to establish in Escondido, Calif. It is located at 242 East Grand Ave.

• HOWELL ELECTRIC CO., Reno, Nev., recently celebrated its first year under the management of Jack Howell, who purchased the business from H. A. Shearer about a year ago. Mr. Howell was formerly a statistician with the Sierra Pacific Power Co. As General

Electric appliance agent in Nevada the Howell Electric Co. has installed some of the largest air conditioning jobs in the West during the past year at the Reno Country Club and the Reno Bank Club, as well as in many residences both in Nevada and the mountain region of California. Associated with Mr. Howell in charge of the construction department is Tom Moltzen.

•

Los Angeles Manufacturer Enters Range Field

Entrance of the Woolwine Metal Products Co., Los Angeles, into the field of electric range and water heater manufacture occurred last month with the introduction of a water heater. This month the new Woolwine range will be placed on the market, with the standard model listing at $89.50.

Manufacture follows painstaking investigation of market conditions conducted for the company by H. L. McDonald, business consultant. Conclusions showed that the great sales opportunities existed in the manufacture of ranges and water heaters. Design of the equipment is based on interviews with a thousand housewives who have cooked electrically for several years. Their suggestions were given to James Geddes, home equipment designer, who executed the plans for the appliances.

•

• DAVIS MAYTAG SHOP, Long Beach, Calif., has moved into more spacious quarters at 5660 Atlantic Ave. H. C. Davis is the proprietor.

•

• GENERAL HOME APPLIANCE is a new Bell, Calif., store opened at 4113 Gage Ave. by Paul Marson and Ralph Englehardt.

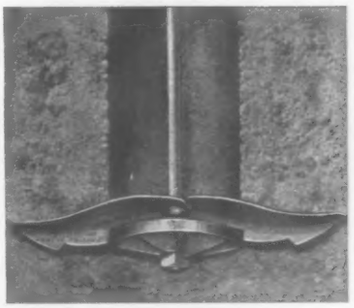
For Progress

CROCKER FIRST NATIONAL BANK

OF SAN FRANCISCO

Member Federal Deposit Insurance Corporation

JAMES R. KEARNEY CORPORATION ST. LOUIS, MO.



EFFICIENT

Made of certified malleable iron—expands 2½ times its rated size—63% contact in firm, undisturbed earth—easily installed—maximum holding power.

Send in Your Request for Further Information

MAYDWELL & HARTZELL INCORPORATED

Electrical Engineers and Manufacturers' Representatives

Los Angeles ★ San Francisco

G. E. Sales Plans Told at Conferences

New products and new sales technique of the Appliance and Merchandise Department of the General Electric Co. were brought to the men in the field in a series of merchandising conferences held with distributors in Denver, Portland, San Francisco and Los Angeles during August. Accompanying John Bussey, president of G-E Supply Corp., from Bridgeport were a score of experts from the G-E appliance and construction materials divisions who gave presentations to the local sales organizations of a type which heretofore were restricted to the company's annual "Camp Merchandise" at Association Island.

Participating in the meetings, which were characterized by G-E Supply Corp. officials as the most helpful ever staged locally were the following representatives from the appliance department: P. B. Zimmerman, manager of appliance sales; D. C. Spooner, manager of the home laundry and traffic appliance division; R. J. Cordiner, manager of the radio division; J. M. Wicht, manager of home laundry sales; E. H. Vogel, manager of radio sales; A. L. Atkinson, manager of vacuum cleaner sales; C. J. Hendon, manager of heating appliance sales; R. J. Heaney, manager of fan sales; J. P. Rainbault, manager of clock sales; R. W. Hart, sales promotion department; A. Rosenberg, commercial research, and C. T. Wandrus, radio sales promotion.

Representatives of the construction materials department included J. H. Crawford, manager; L. F. Giblin, field supervisor; H. G. Knoederer, commercial engineer; A. E. Newman, manager of wire and conduit sales; J. C. Dallem, manager of wiring device sales, and F. A. Parnell, sales promotion manager.

•

• REDEWILL ELECTRIC CO., 222 West Washington St., Phoenix, will now be jointly owned and operated by father and son. A. Cass Redewill has announced that his son Howard Cass Redewill will become assistant manager and co-owner. The younger Redewill has been in business at Mount Vernon, Wash., and recently returned to Phoenix to join his father in the company.

•

• OGDEN witnessed the opening of the new Ek & Lund Electric Co., at 2372 Washington Ave. Carrying a complete line of ranges, refrigerators, washers and ironers, radios and small appliances, the business is headed by F. L. Lund and Mr. Eklund, both well known in Ogden business.

•

• Z.C.M.I. WHOLESALE HARDWARE CO., has been appointed distributor of Eureka vacuum cleaners in Utah, Idaho and Western Wyoming. Sale of Eureka cleaners at sores of the Utah Power & Light Co. will continue, and service will be maintained at the factory branch store in Salt Lake City.

•

• ALBERT RIVES, pioneer electrical contractor of Spokane, has been appointed manager of the electrical device and wiring and fixture department of the Brown-Johnston Wholesale Co., in its new location at S117 Wall St., in that city.

•

• RADIO SALES SERVICE LTD., pioneer electrical appliance distributor of Vancouver and Victoria, has been appointed by the Canadian Radio Corp. as British Columbia distributors for Apex washing machines and ironers. The firm, which is managed by Allison M. Jagoe, recently took over British Columbia and Yukon distribution of Electrolux electric refrigerators.

•

• JORDAN ELECTRIC CO., 209 W. Main St., El Monte, Calif., is a new appliance store opened by T. H. Jordan who formerly operated an appliance store in Seattle.

Kelvinator Announces Washer and Ironer

Addition of an electric ironer and electric washer to the Kelvinator Corp.'s line of household appliances has been announced by H. W. Burritt, vice-president in charge of sales. Both products are expected to be on the market early in 1937.

Directing the merchandising will be a new department headed by V. J. McIntyre, who for the past year has been domestic sales manager. M. S. Bandoli moves into Mr. McIntyre's old position. Manufacture of the new line is expected to balance production and sales department schedules.

•

• N. P. KAFOURY, formerly with the Sierra Equipment Corp., has organized the Sierra Electric Co., Inc., at 234 Ninth St., San Francisco, to act as distributors of Stanley-Patterson Co. signalling equipment, Hart Manufacturing Co. switches and Operadio public address and paging systems.

•

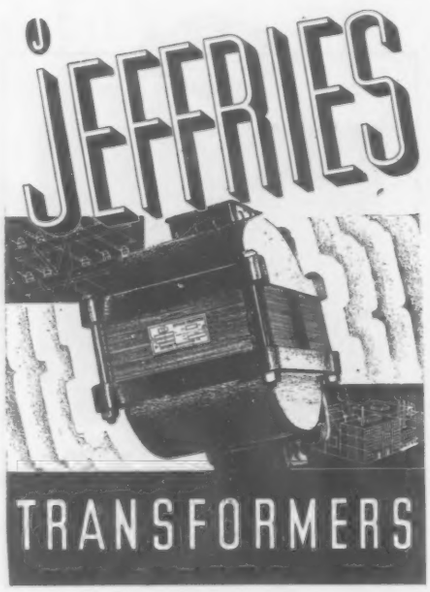
• GEORGE CURTISS has been appointed San Francisco representative of S & M lamps and lighting equipment. Mr. Curtiss was formerly manager of the Pacific Radio Trade Assn.

•

• R. A. REED ELECTRIC CO., Los Angeles, have moved to new quarters at 5503 S. Boyle Ave. Machinery for handling all types of industrial electrical jobs, in which the firm specializes, is included in their new plant.

•

• ELMER F. SHEETS Electrical Appliance Store, newly opened at 117 E. Commonwealth Ave., Fullerton, Calif., takes the name of the owner who is well known in the community through nine-years' service with the Southern California Edison Co. Ltd., Appliance department.



Save Their Cost and Pay Dividends by—

1. Elimination of duplicate conduit runs.
2. Saving in power rate.

(Put all of your 110-volt equipment on a 220-volt or 440-volt power circuit, it is economical.)

JEFFRIES TRANSFORMER COMPANY
5706 Long Beach Ave. Los Angeles

PROFESSIONAL SERVICES

ELECTRICAL TESTING LABORATORIES
Electrical Photometrical, Chemical and Mechanical Tests. Inspection of Materials and Apparatus at Manufactory.
80th St. and East End Ave., New York

ARTHUR R. KELLEY
CONSULTING ENGINEER
Reports and Valuations, Public Utility Industrial Properties
Edison Bldg. Los Angeles

LIVE Wires that *live long*

EVERY quality demanded of building wire is found in its highest form in Americore, Amparak, Amerite and Amperox Performite—all made by American Steel & Wire Company. These building wires and cables are supplied in all standard colors; are clean to handle, and save time and effort because they "pull" easily.

Once installed these wires are sure to give many years of service. They are impervious to moisture, will not crack with cold or soften with heat. Americore, Amparak, Amerite and Amperox Performite are all protected with the patented Safecote finish which adds to their safety, economy and endurance. Thus protected they will not carry nor support flame.

We will be glad to provide you with samples that will demonstrate for themselves that these long lasting building wires can serve you better and more economically.

AMERICORE (*Code*)

AMPARAK (*Intermediate*)

AMERITE (*30%*)

AMPEROX PERFORMITE (*U. S. Govt. "Superaging-Grade"*)

FLAME RETARDING SAFE COTE MOISTURE RESISTING

ELECTRICAL WIRES *and* CABLES

COLUMBIA STEEL COMPANY · *San Francisco*

Pacific Coast Distributors of Electrical Wires and Cables for American Steel & Wire Company

United States Steel Products Company, New York
Export Distributors

UNITED STATES STEEL

POLICE RADIO TELEPHONE is the title of a new bulletin published by the Western Electric Co. It is directed particularly toward smaller cities and towns which may now acquire efficient and dependable police radio through developments in equipment and Federal regulations. The new Western Electric 216A radio telephone equipment for police headquarters employs a small 5-watt transmitter and cuperheterodyne receiver, both a.c. operated.

●

"IN-BILT" lighting units are given particular attention in a "datalog" published by Holophane Co., Inc., 342 Madison Ave., New York. Abundant factual material is included with a presentation of the Holophane line of fixtures. A chart of light distribution is shown for each of the units.

●

COMPLETE new bulletins, price sheets and data sheets covering the Allen-Bradley Co. electric controlling apparatus have been released at 1326 South 2d St., Milwaukee, Wis.

WHERE TO BUY IT IN THE WEST

Roller-Smith Company

3 Barclay St., New York City — Works: Bethlehem, Pa.

★ INSTRUMENTS (Indicating and Graphic) ★ CIRCUIT BREAKERS (Air and Oil)

★ INSTRUMENT AND CONTROL SWITCHES

★ SWITCHGEAR ★ RELAYS

Sales Agents: Electric Material Co., San Francisco and Los Angeles. J. C. McDougall, Seattle. Mark G. Mueller, Denver. T. E. Geary, Omaha

Air Conditioning
Frigidaire Corp.
General Elec. Co.
Graybar Elec. Co., Inc.
Kelvinator Corp.

Ammeters and Voltmeters
Bristol Co.
General Elec. Co.
Roller-Smith Co.
Westinghouse Elec. & Mfg. Co.
Weston Elec. Instr. Corp.

Anchors, Guy
A. B. Chance Co.
Hubbard & Co.
James R. Kearney Corp.

Anchor and Guy Rods
A. B. Chance Co.
General Elec. Co.
Hubbard & Co.
Maydwell & Hartzell, Inc.

Appliances, Household
Edison Gen. Elec. Appliance Co., Inc.
General Elec. Co.
General Elec. Supply Corp.
Graybar Elec. Co., Inc.
Lindemann & Hoverson Co., A. J.
Malleable Iron Range Co.
McGraw Elec. Co.
National Enameling & Stamping Co.
The Silex Co.
Waters-Genter Div.
Westinghouse Elec. Supply Co.

Belts, Safety Straps, Pole Climbers
Western Hardware & Tool Co.

Boxes
General Cable Corp.
General Elec. Co.
Superior Switchboard & Devices Co.

Brackets, Wood
Locust Pin Co.

Breakers

Air Circuit Breakers
General Elec. Co.
I-T-E Circuit Breaker Co.
Roller-Smith Co.
Sangamo Elec. Co.
Westinghouse Elec. & Mfg. Co.

Oil Circuit Breakers
Allis-Chalmers Mfg. Co.
General Elec. Co.
Pacific Elec. Mfg. Corp.
Roller-Smith Co.
Westinghouse Elec. & Mfg. Co.

Bus Fittings
Burndy Eng'g Co.
General Elec. Co.
Pacific Elec. Mfg. Corp.

Buses
Aluminum Co. of America

Cable Accessories
General Cable Corp.
General Elec. Co.
John A. Roebling's Sons Co.

Cables
Aluminum Co. of America
American Steel & Wire Co.
Columbia Steel Co.
Crucible Steel Co. of America
General Cable Corp.
General Elec. Co.
Graybar Elec. Co., Inc.
Maydwell & Hartzell, Inc.
National Elec. Products Corp.
The Okonite Co.
Okonite-Callender Cable Co.
Providence Insulated Wire Co.
Rockbestos Products Corp.
John A. Roebling's Sons Co.
United States Steel Corp.
Westinghouse Elec. & Mfg. Co.

Carbon Brushes
National Carbon Co., Inc.

Carbon Products
National Carbon Co., Inc.

Chimes
Square D Co., Inc.

Coffee Makers
The Silex Co.

Coil Winding
Jeffries Transformer Co.

Commutator Dressers
Ideal Commutator Dresser Co.

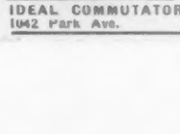
Compounds, Insulating
Clifton Mfg. Co.
General Cable Corp.
General Elec. Co.

Condensers, Electric
Allis-Chalmers Mfg. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Conduit
Aluminum Co. of America
General Elec. Co.
Youngstown Sheet & Tube Co.

Conduit, Underground
Fire Proof Wall Co.
Johns-Manville Corp.

Cutouts
James R. Kearney Corp.
General Elec. Co.
Schweitzer & Conrad, Inc.
Westinghouse Elec. & Mfg. Co.



MICA UNDERCUTTER WORKS IN SPACE 2¾"

Powerful. For shop and field use. Try it for 10 days free.

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1042 Park Ave. Sycamore, Ill.

Connectors
Burndy Eng'g Co.
James R. Kearney Corp.

Controllers
Allis-Chalmers Mfg. Co.
General Elec. Co.
Square D Co.
Westinghouse Elec. & Mfg. Co.

Demand Control
General Elec. Co.
Wesix, Inc.

Distribution Specialties
General Elec. Co.
Hubbard & Co.
James R. Kearney Corp.
Maydwell & Hartzell, Inc.
St. Louis Malleable Casting Co.
Superior Switchboard & Devices Co.

Electrodes, Arc Welding
John A. Roebling's Sons Co.
General Elec. Co.

Enclosures, Meter and Instrument
Superior Switchboard & Devices Co.

Fans
General Elec. Co.

Farm Electrification Equipment
General Elec. Co.

Fittings, Conduit
General Elec. Co.

Fittings, Insulator
Brewer-Titchener Corp.

Fixtures, Lighting
Benjamin Elec. Mfg. Co.
General Elec. Co.
Smoot-Holman Co.

Floodlighting
General Elec. Co.
S & M Lamp Co., Inc.
Smoot-Holman Co.

Flumes
California Corrugated Culvert Co.
R. Hardesty Mfg. Co.
Pure Iron Culvert & Mfg. Co.
Washington Corrugated Culvert Co.
Western Metal Mfg. Co.

Gasoline
Union Oil Co.

Gates
California Corrugated Culvert Co.
R. Hardesty Mfg. Co.
Pure Iron Culvert & Mfg. Co.
Washington Corrugated Culvert Co.
Western Metal Mfg. Co.

Generators
Allis-Chalmers Mfg. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Graphite Products
National Carbon Co., Inc.

Ground Rods
Maydwell & Hartzell, Inc.

Heaters, Air
Edison Gen. Elec. Appliance Co.
Noblitt-Sparks Industries, Inc.
Thermador Elec'l Mfg. Co.
Wesix Inc.
Edw. L. Wiegand Co.

Heaters, Water
Edison Gen. Elec. Appliance Co.
Fowler Mfg. Co.
Lindemann & Hoverson Co., A. J.
Malleable Iron Range Co.
Standard Elec. Stove Co.
Thermador Elec'l Mfg. Co.
Wesix Inc.
Westinghouse Elec. & Mfg. Co.

Heating Element—Repair Part
Edw. L. Wiegand Co.

Instruments, Measuring and Recording
See Ammeters, Voltmeters, Wattmeters.

Insulation
General Elec. Co.
Johns-Manville Corp.

Insulators
Brewer-Titchener Corp.
Corning Glass Works
Graybar Elec. Co., Inc.
Hemingray Glass Co.
Geo. E. Honn Co.
Lapp Insulator Co., Inc.
Maydwell & Hartzell, Inc.
Owens-Illinois Glass Co.
Westinghouse Elec. & Mfg. Co.

Ironers
Easy Washing Machine Corp.
General Elec. Co.
Savage Distributing Co.

Knobs, Tubes, Cleats
Standard Elec'l Porcelain Mfrs.

Lamps, I. E. S.
Faries Mfg. Co.
General Elec. Co.
Lumidor Mfg. Co., Inc.

Lamps, Mazda
General Elec. Co.
Westinghouse Lamp Co.

Lamps, Student
Lumidor Mfg. Co., Inc.

Lamps, Sun
General Elec. Co.

Lighting Equipment
Benjamin Elec. Mfg. Co.
Faries Mfg. Co.
Smoot-Holman Co.
Wuelker Reflector Mfg. Co.

Line Material
Maydwell & Hartzell, Inc.

Meters
The Bristol Co.
General Elec. Co.
L. A. Nott
Sangamo Elec. Co.
Westinghouse Elec. & Mfg. Co.
Weston Elec'l Instrument Corp.

Motors
Allis-Chalmers Mfg. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Motor Starters
Allis-Chalmers Mfg. Co.
General Elec. Co.
Square D. Co., Inc.
Westinghouse Elec. & Mfg. Co.

Oil, Lubricating
Associated Oil Co.
Union Oil Co.

Oil, Transformer & Switch
Associated Oil Co.
General Elec. Co.
Union Oil Co.

Panel Boards
General Elec. Co.
Square D Co., Inc.
Superior Switchboard & Devices Co.
Westinghouse Elec. & Mfg. Co.

Where to Buy It in the West—*Continued*

Photoelectric Cells
General Elec. Co.
Weston Elec'l Instrument Corp.

Pins, Wood
Locust Pin Co.

Pole Line Hardware
Brewer-Titchener Corp.
General Electric Supply Corp.
Graybar Electric Co., Inc.
Hubbard & Company
Joslyn Co. of California
Kortick Mfg. Co.
Maydwell & Hartzell, Inc.

Porcelain
Standard Elec. Porcelain Mfrs.

Public Utilities
California Oregon Power Co.
Idaho Power Co.
Mountain States Power Co.
Northwestern Electric Co.
Pacific Gas and Electric Co.
Pacific Power & Light Co.
Portland General Electric Co.
Puget Sound Power & Light Co.
San Diego Cons. Gas & Elec. Co.
San Joaquin Light & Power Corp.
Southern California Edison Co. Ltd.
Utah Power & Light Co.
Washington Water Power Co.

Pullers, Slack
A. B. Chance Co.

Pumps
Pelton Water Wheel Co.

Range Units
Edison Gen. Elec. Appliance Co.
Edwin L. Wiegand Co.

Ranges
Edison Gen. Elec. Appliance Co.
General Elec. Co.
General Elec. Supply Corp.
Kelvinator Corp.
Lindemann & Hoverson Co., A. J.
Malleable Iron Range Co.
Standard Elec. Stove Co.
Steiger & Kerr Stove & Fdry. Co.
Walker & Pratt Mfg. Co.
Westinghouse Elec. & Mfg. Co.

Reflectors
Benjamin Elec. & Mfg. Co.
Smoot-Holman Co.
Westinghouse Elec. & Mfg. Co.
Wuelker Reflector Mfg. Co.

Refrigerators
Frigidaire Corp.
General Elec. Co.
General Elec. Supply Corp.
Graybar Elec. Co., Inc.
Kelvinator Corp.
Leonard Refrigerator Co.
Malleable Iron Range Co.
Westinghouse Elec. & Mfg. Co.

Relays
General Elec. Co.
Hart Mfg. Co.
Roller-Smith Co.
Square D Co., Inc.

Rheostats & Resistors
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Roasters
National Enameling & Stamping Co.
Westinghouse Elec. & Mfg. Co.

Rolls, Wringer
Lovell Mfg. Co.

Rural Line Hardware
General Elec. Supply Corp.
Graybar Elec. Co., Inc.
Hubbard & Co.
Joslyn Co. of Calif.
Kortick Mfg. Co.
Maydwell & Hartzell, Inc.

Service Organizations
Crocker First National Bank
Elec'l Testing Labs.
McGraw-Hill Book Co.
Northwest Elec. Light & Power Association
Pacific Coast Elec'l Ass'n
Pacific Coast Elec'l Bureau

Strand, Guy
Maydwell & Hartzell, Inc.
Pacific Wire Rope Co.

Street Lighting Fixtures
General Elec. Co.
Graybar Elec. Co., Inc.
Hubbard & Co.
Westinghouse Elec. & Mfg. Co.

Switchboards
Allis-Chalmers Mfg. Co.
General Elec. Co.
Roller-Smith Co.
Square D. Co., Inc.

Switches, Disconnect
General Elec. Co.
Kearney Corp., James R.
Pacific Elec. Mfg. Corp.
Schweitzer & Conrad, Inc.
Westinghouse Elec. & Mfg. Co.

Switches, Fuse
General Elec. Co.
Kearney Corp., James R.
Schweitzer & Conrad, Inc.

Switches, Heater
Bryant Elec. Co.
General Elec. Co.
Hart Mfg. Co.

Switches, High Tension
James R. Kearney Corp.

Switches, Meter Test
General Elec. Co.
Meter Devices Co.
Square D Co., Inc.
Superior Switchboard & Devices Co.

Switches—Pressure and Temperature
The Bristol Co.
Hart Mfg. Co.
Square D Co., Inc.

Switches, Safety
Colt's Patent Fire Arms Mfg. Co.
General Elec. Co.
Square D Co., Inc.
Westinghouse Elec. & Mfg. Co.

Switches, Thermostat Controlled
Colt's Patent Fire Arms Mfg. Co.
General Elec. Co.
Hart Mfg. Co.
Thermador Elec'l Mfg. Co.

Switches, Time
General Elec. Co.
Sangamo Elec. Co.

Switchgear
Allis-Chalmers Mfg. Co.
General Elec. Co.
I-T-E Circuit Breaker Co.
Westinghouse Elec. & Mfg. Co.

Tapes—Friction and Rubber
Clifton Mfg. Co.
Geo. E. Honn Co.

Telephone & Telegraph Hardware & Specialties
General Elec. Supply Corp.
Graybar Elec. Co., Inc.
Hubbard & Co.
Maydwell & Hartzell, Inc.

Telephone Systems—Private
American Automatic Elec. Sales Co.

Terminals, Cable
General Cable Corp.
General Elec. Co.

Testing Devices
Superior Switchboard & Devices Co.

Tools, Live Line
A. B. Chance Co.
James R. Kearney Corp.
Western Hardware & Tool Co.
Sangamo Elec. Co.

Transformers
Allis-Chalmers Mfg. Co.
Gardner Elec. Mfg. Co.
General Elec. Co.
Jeffries Transformer Co.
Western Transformer Co.
Westinghouse Elec. & Mfg. Co.

Tubing, Elec'l Metallic
Aluminum Co. of America

Turbines
Pelton Water Wheel Co.

Valves
Pelton Water Wheel Co.

1896

A Protective Step in a NEW art

In 1896 the "Know by Test" idea was applied to the carbon filament incandescent lamp. E.T.L. was founded then as a Lamp Testing Bureau to conduct continuous tests of lamps. Each year showed an improvement in lamp quality over the last. The services of E.T.L. (now grown to cover all manner of electrical, mechanical, chemical and photometric tests) are still retained on lamp testing.

It is significant, as shown by E.T.L. records, that during the past 40 years an improvement in lamp quality has been effected each year, indicating the advantage of working in the light of adequate knowledge of the product.

LIGHTING

1936

A Protective Step in a NEW art

Within the past two years illuminating engineering was applied to table and floor lamp design through specifications developed by I.E.S.

The new art was launched under "Know by Test" protection. The record of its success is written in consistent improvement in quality — and regular gains in sales now well above the million mark. Continuous testing can keep this important business on a trail blazed by the incandescent lamp. The whole industry can thereby benefit.

ELECTRICAL TESTING LABORATORIES

80th Street & East End Ave. New York

They must improve

COMMUTATION

"YOU CAN SEE THEY'RE BETTER"

● Judgment of brush performance on commutating equipment is based on several factors, but none more important than commutation. A brush, to prove superiority, must improve commutation.

The growing popularity of the "SA" Series of electrographitic brushes is evidence that they DO improve commutation. The grades of this series are graduated in performance characteristics. This permits selection of the grade which will provide good all-round performance, as well as good commutation.

●

An "SA" Series Grade is not "just another brush." It is the product of a carefully planned program of research and engineering development.

●

There is a National Pyramid Brush for every class of service

NATIONAL CARBON COMPANY, INC.
CARBON SALES DIVISION, CLEVELAND, OHIO
Unit of Union Carbide UCC and Carbon Corporation
Branch Sales Offices: New York, Pittsburgh, Chicago, San Francisco

Where to Buy It in the West—*Continued*

Washers, Clothes
Easy Washing Machine Corp.
Elec't Appliance Service Corp.
General Elec. Co.
Little Giant, Inc., Ltd.
Savage Distributing Co.

Wattmeters
Bristol Co.
General Elec. Co.
L. A. Nott
Roller-Smith Co.
Sangamo Elec. Co.
Westinghouse Elec. & Mfg. Co.
Weston Elec. Instrument Corp.

Water Wheels
Pelton Water Wheel Co.

Wire
Aluminum Co. of America
America Steel & Wire Co.
Columbia Steel Co.
Crescent Ins. Wire & Cable Co.
Crucible Steel Co.
General Cable Corp.
Hazard Ins. Wire Works
Keystone Steel & Wire Co.
National Elec. Products Corp.
The Okonite Co.
Providence Insulated Wire Co.
Rockbestos Products Corp.
United States Steel Corp.
Westinghouse Elec. Supply Co.

Wiring Supplies
Associated Sales Engineers
Bryant Electric Co.
Gen. Elec. Supply Corp.
Graybar Elec. Co., Inc.
General Elec. Co.
Graybar Elec. Co., Inc.
Hart Mfg. Co.
Indiana Steel & Wire Co.
Maydwell & Hartzell, Inc.
Pacific Wire Rope Co.
John A. Roebling's Sons Co.
Westinghouse Elec. & Mfg. Co

Wringer Rolls
Lovell Mfg. Co.

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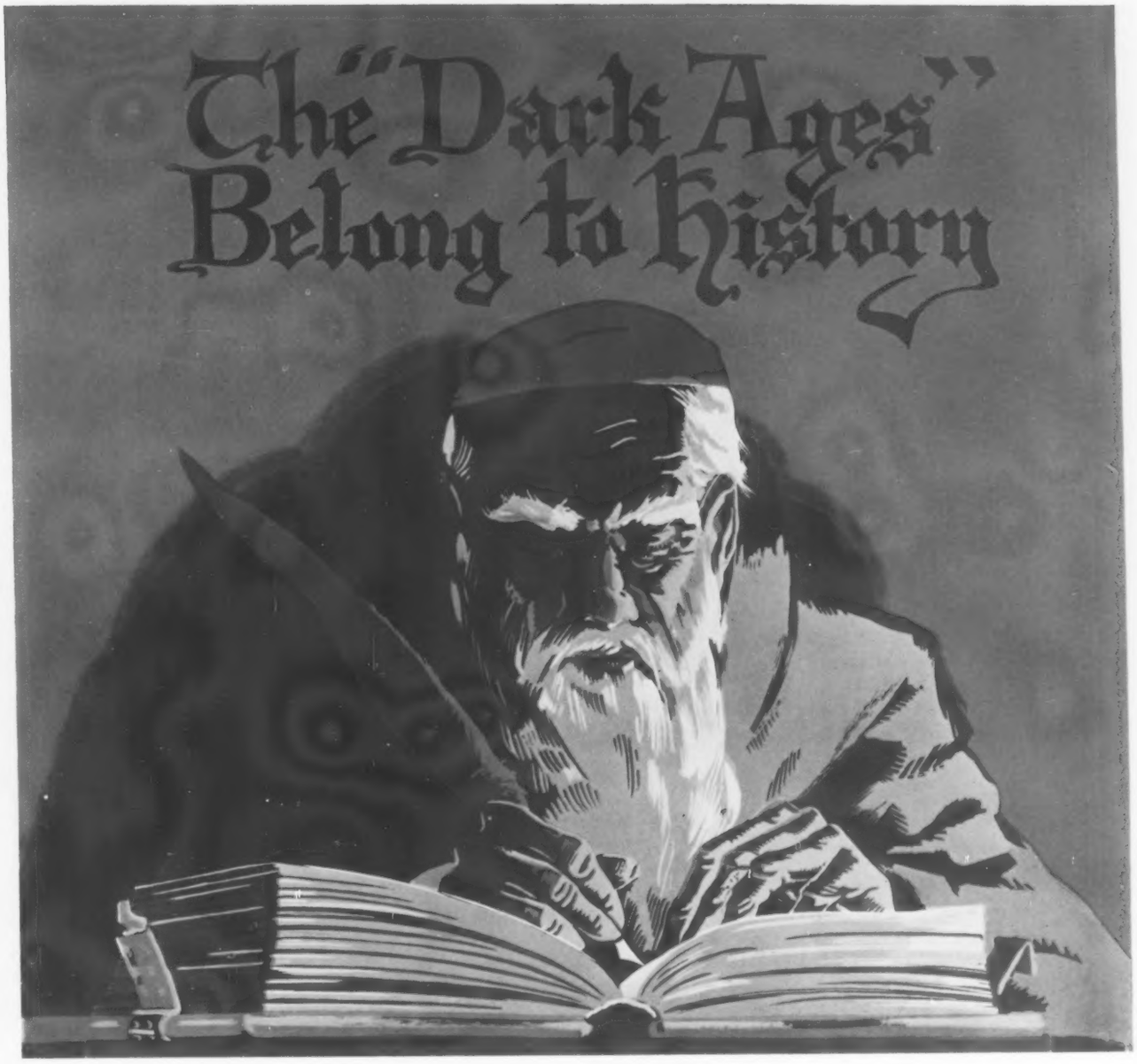


THIS IS THE AGE OF LIGHT

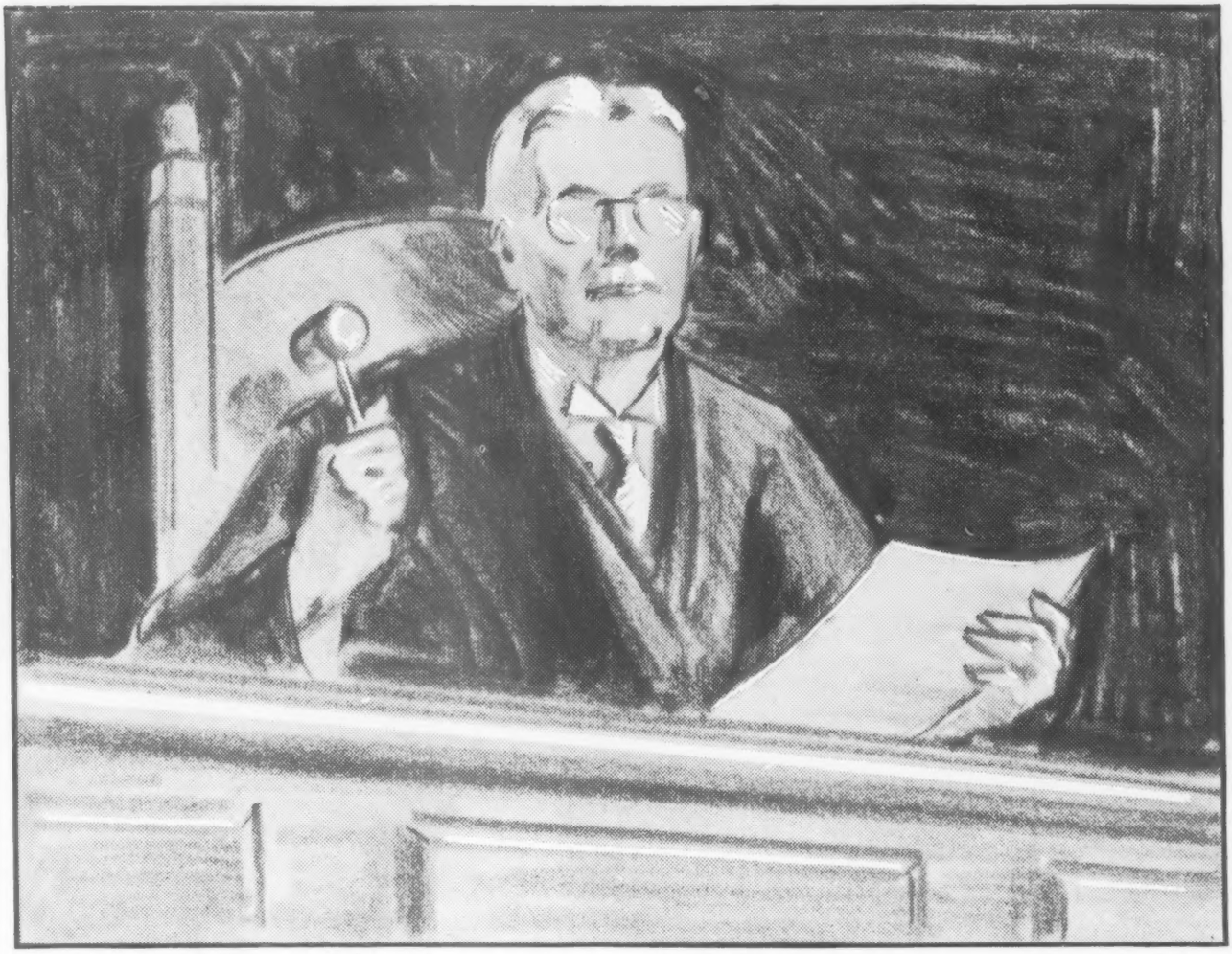
And next month is the "Second Birthday" of the sensational I.E.S. Better Sight Lamps—the first lamps to carry the unqualified endorsement of illuminating engineers. Honoring the event, the industry is holding a 30 day sell-e-bration. Page and double page advertisements will be published in eleven national magazines. Manufacturers will feature brand new "Birthday Models" at special low prices. Shade manufacturers will be ready with special values in their lines. And simultaneously, the P. G. and E. will join with 1400 Mazda dealers in a parallel campaign on 100 watt bulbs. If you're interested, we suggest that you use the time between now and October 1 to plan. Write the Better Light-Better Sight Bureau, 420 Lexington Ave., New York. Consult your manufacturer, then call on us for further details.

P·G·and E·

PACIFIC GAS *and* ELECTRIC COMPANY

Owned · Operated · Managed by Californians

EW 109-936



WHEN THE LAW* SAYS REFRIGERATION IS A NECESSITY, THAT'S NEWS!

Modern homemakers have long recognized the necessity of efficient household refrigeration. They realize its advantages in terms of convenience, economy and safe food preservation.

Now the refrigerator is legally classed as a home necessity, an admission on the part of the *Law* that we can't get along without it.

There's real sales ammunition in this fact . . . a dramatic method of overcoming the argument that an electric refrigerator is a luxury product. It will stiffen the backs of your salesmen, too, and encourage them to seek out prospects in the lower income brackets where most of our possibilities are today.

This opportunity will not come again. Next season will be too late. For the balance of this year let's sell electric refrigerators as the No. 1 necessity—for every home.

**The California Code of Civil procedure (section 690.2 amended in 1935) definitely places refrigerators among the NECESSARY household articles. "Necessary household table and kitchen furniture including ONE REFRIGERATOR", etc.*

Pacific Coast Electrical Bureau

601 West Fifth Street, Los Angeles

447 Sutter Street, San Francisco